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Gleanings in Bee Culture



DRONE, QUEEN, AND WORKER.—SEE PAGE 1002.

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Vol. XXXVI

August 15, 1908

No. 16

ABC AND XYZ OF BEE CULTURE

By A. I. ~~and~~ E. R. ROOT

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READ WHAT EXPERTS SAY OF IT

The Christmas mail brought me what is probably as useful and beautiful a Christmas present as I ever received—a morocco-bound copy of the new edition of the ABC and XYZ of Bee Culture. Bee books and journals have come to my desk of which it seemed as though the least said the better. Not so with this book. On the contrary, it seems as though words were lacking to do it justice. There are many other bee-books, each filling its niche, but, in all the world, there is nothing so comprehensive as the ABC and XYZ of Bee Culture. There is no point in the wide domain of apiculture that is not touched upon in this volume, and the information is the very latest and most authentic, well written and well illustrated. The amateur and the expert are both served equally well.—W. Z. HUTCHINSON, editor and proprietor of the *Bee-Keepers' Review*, and author of *Advanced Bee Culture*.

No bee-keeper's library can be at all complete without a copy of this magnificent apian work. It has reached a sale of over 100,000 copies already, being the most largely sold book on bees in the world. Better send to us for a copy to read during the long winter evenings.—*American Bee Journal*.

This work of 536 pages is, as its name implies, a complete cyclopædia of everything pertaining to bees and bee-keeping. It was originally compiled by A. I. Root, who in the 1877 preface, after stating his indebtedness to Langstroth, Quinby, and others, says that "A great part of this ABC book is really the work of the people, and the task that devolves on me is to collect, condense, verify, and utilize what has been scattered through thousands of letters for years past." Since the first copy of this work appeared, now thirty-one years ago, it has undergone many revisions, and has had many additions, both of letterpress and illustrations, while the rapid advancement in bee culture has made it necessary in many cases to remove whole articles and rewrite them entirely. The revision has been ably carried out by E. R. Root, the present editor of *GLEANINGS*, who has had the assistance of a number of well-known and able men. In the preface the names of the writers of the different articles are given. For instance, we find Dr. C. C. Miller writes on honey-comb and out-apiaries; Dr. E. F. Phillips on the eye, parthenogenesis, and scent of bees; E. R. and H. H. Root on wax and wintering, both of these having carried out a number of experiments on these subjects. There are also articles by W. K. Morrison and Mrs. Comstock. It seems almost superfluous to say any thing about a book of which already 100,000 copies have been sold; the simple fact speaks for itself that it fills a want, and is an attestation of its worth. Among the articles that have been revised we find the new methods of queen-rearing described, so that the practical bee-keeper will have the latest and best ideas on the subject before him for reference. The new methods of wax-production are treated in an exhaustive manner; and as this subject is of more importance than formerly, greater space has been devoted to it. We have nothing but good words for this work, and recommend our readers to get a copy of the 1908 edition. The work is profusely illustrated and beautifully printed, and is a credit to the publishers.—By T. W. COWAN, Esq., editor of the *British Bee Journal*. Mr. Cowan is the author of two first-class books on bees and bee-keeping, "The Bee-keeper's Guide" and "The Honey-bee."

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OHIO

Honey Markets.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent), cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING-RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 **WHITE.**—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 **LIGHT AMBER.**—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade; wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 lbs. net per case of 24 sections.

Cases of unseparated honey to average not less than 21 lbs. net per case of 24 sections.

INDIANAPOLIS.—The demand is good, but prices very irregular and unsettled. Producers are offering fancy white comb as low as 12 cts., and white-clover extracted in five-gallon cans as low as 7 cts. Amber grades are not mentioned here at present. Beeswax remains steady at 28 cts. cash and 30 in exchange for merchandise.

Indianapolis, Aug. 5.

WALTER S. POWDER.

SAN FRANCISCO.—Spot prices quoted by packets on honey are unchanged. The crop is being gradually gathered, and considerable new honey has been marketed. White-sage honey is very scarce this year. Stocks are light, and there is a good demand both here and in the East. In view of the shortage, little change in prices is anticipated. Water-white comb, per lb., 16 to 17; white, 15; water-white extracted, 8 to 8½; light amber, 7 to 7½; dark amber, 5½ to 5¾; candied.

Aug. 1.

Pacific Rural Press.

ZANESVILLE.—Some native honey is now arriving on this market; and, while the demand is by no means heavy, yet the movement is more satisfactory than would be naturally expected in view of the general business depression. For No. 1 to fancy comb the jobbing trade is offering 12 to 13 cts. on arrival. The market is still unsettled, though there is a tendency toward lower prices. So far the demand for extracted is confined almost entirely to small retail packages. Beeswax is in some demand in a retail way. For good yellow beeswax 1 am offering 28 cts. in cash or 30 in exchange for bee-supplies.

Aug. 7.

EDMUND W. PEIRCE,
Zanesville, O.

CINCINNATI.—Quite a number of shipments of fine honey are now coming in, but prices are ruling lower than last season. In fact, we have never seen buyers so disinterested in a new crop of honey. We are offering the choicest at 14 and 15 by the single case. The demand for extracted honey is dull, which we attribute to the lack of activity in the business world; and, secondly, this is one of the duller months in the year. We are selling amber extracted at 5½ to 6½ according to quality and quantity purchased. Fancy white extracted honey brings from 7 to 9 cts. Beeswax is somewhat easier, and we are paying 27 cts. cash and 29 in trade, delivered here. The above quotations on honey are the prices at which we sell—not what we are paying.

July 21.

THE FRED W. MUTH CO., Cincinnati, O.

KANSAS CITY.—There is quite a supply of native honey coming to market, prices ranging from \$3.25 for fancy white to \$2.75 for amber and off grades, the demand being for only the best qualities. There is a little demand for extracted at 7½.

Aug. 3.

C. C. CLEMONS & CO.

BUFFALO.—New honey is arriving now quite freely. Quality is very good. Buyers seem slow to buy. They are holding off for lower prices. In order to get it to moving, prices must go lower. No. 1 to fancy white-clover comb, 14 to 15; No. 2 ditto, 10 to 12; No. 3 ditto, 9 to 10; white-clover extracted, 7 to 8; ditto amber, 6 to 6½. No dark honey is arriving. Beeswax, 28 to 30.

Aug. 11.

W. C. TOWNSEND.

CINCINNATI.—There is an abundance of comb honey arriving daily, but no demand for it. We can give no other reason than, perhaps, hard times. People do without it. There is a fair demand for extracted white clover, which is selling at 7½ to 8. Amber in barrels is selling at 5½ to 6. Beeswax, light demand, is selling at 33.

July 22.

C. H. W. WEBER, Cincinnati, O.

PHILADELPHIA.—This has been unquestionably the greatest honey season we have had in the East for a quarter of a century. The first lot, of 3000 lbs., arrived in Philadelphia on the river boat yesterday, and was offered at 10½ for the amber and 12½ for white, no other sales being made. The market is not as yet established; but we are looking for low prices. Beeswax is firm at 28.

July 24.

WM. A. SELSER, Philadelphia, Pa.

DENVER.—We are entirely closed out of comb honey, and ready to receive consignments of new-crop comb, the first arrivals of which should move quickly at good prices if fancy stock. Extracted honey is in fair demand. We quote white extracted, 8 to 9; light amber and strained, 6¼ to 7½. We pay 25 for clean yellow wax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N,

Denver, June 23.

F. Rauchfuss, Manager.

BOSTON.—Fancy white comb honey, 17; No. 1 white comb, 16; California white sage, extracted, 9; California light amber, 8; Southern honey in barrels, slow sale, 5 to 6.

July 1.

BLAKE-LEE CO., Boston, Mass.

LIVERPOOL.—Honey is steady. Market prices are fully maintained. Chilean extracted, 4 to 6; Penian, 3½ to 5½; California, 7 to 9; Jamaican, 4 to 5; Haiti, 5½ to 6. Beeswax is quoted, African, 29; American, 30 to 33; West Indian, 29 to 32; Chilean, 30 to 36; Peru, 33 to 34; Jamaican, 33 to 34.

July 18.

TAYLOR & CO., 7 Tithebarn St.

A FULL LINE of Bee-keepers' Supplies. My patent Section-machine at half-price. A new queen-nursery, and queen-rearing outfit. Queens from imported Italians, Caucasians, Carniolans, and Adel queens. Send for catalog and price list.
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from imported mother, mated to drones from imported mother in yard remote from other bees, \$1.00 each; \$9.00 per doz. Mis mated queens, Carniolan and Banat, 50 cts. each; \$5.00 per doz. **E. H. HAFFORD, Fennville, Mich.**

GLEANINGS IN BEE CULTURE

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Raspberry Honey.

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In addition, it is of very superior quality; so much so that it was awarded the gold medal, in competition with other honeys, at the Jamestown Exposition. It has a flavor all its own—a flavor that smacks of the wild red raspberry of the woods.

Another most important reason why I should get a good price for my honey is the manner in which it is produced. It is left on the hives for weeks after it is sealed over, and thus acquires that finish, that smooth, oily richness, that thick, rich deliciousness that can be obtained in no other way.

It costs more to produce such honey, there is not so much of it,

and it is worth more than the ordinary honey; just as big Northern Spy apples, streaked with crimson and filled with juicy spiciness, are worth more than ordinary fruit.

As a finishing touch the honey is put up in bright new 60-lb. tin cans, securely boxed, and the boxes bound with iron so that they will bear shipment; in fact, I will guarantee safe arrival in perfect condition.

For a single 60-lb. can the price is \$6.25; for two cans in a case (120 pounds) the price is \$12.00 a case, regardless of the number of cases that are taken.

If you are not acquainted with this honey, send me ten cents and I'll mail you a generous sample, and the ten cents may apply on the first order that you send.

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GLEANINGS IN BEE CULTURE

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CONTENTS OF AUGUST 15, 1908

HONEY COLUMN.....	976
STRAY STRAWS.....	987
EDITORIAL.....	988
Italians, Extra Yellow, Temper of.....	988
Robber-traps, Value of.....	989
Suspension of American Bee-keeper.....	989
Turkey Feathers for Bee-bush.....	989
Combs Emptied Without the Extractor.....	989
Uncapping-knives, Heating.....	990
E. W. Alexander, Sickness of.....	990
GLEANINGS FROM FOREIGN EXCHANGES.....	993
FANCIES AND FALLACIES.....	993
BEE-KEEPING IN THE SOUTHWEST.....	994
CONVERSATIONS WITH DOOLITTLE.....	995
GENERAL CORRESPONDENCE.....	996
Swarming, Selecting a Place in Advance.....	996
Hive-lifting Wheelbarrow.....	997
Interview with Buehne.....	998
Location of Extracting Yards.....	999

Trees, Enemies of.....	1000
Bee Diseases in Massachusetts.....	1001
Legs of the Bee.....	1002
Alexander Plan of Increase.....	1005
Queen-rearing, Simplified.....	1007
Case Method of Requeening.....	1008
Twin Mating-boxes.....	1008
Queen-Traps.....	1009
Foul-brood Legislation in Indiana.....	1009
HEADS OF GRAIN.....	1010
Waste, Greasy.....	1010
Apiary, Protection for.....	1010
Spacing-staple on End-bar.....	1010
Bees Dying in Spring.....	1010
Foundation, Weight of Supers.....	1011
Bulk Comb Honey.....	1011
Young Workers in Queen-cells.....	1011
OUR HOMES.....	1012
Warships of United States.....	1017

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Entries close August 29 at 9 P.M.

Best nucleus of Italian bees with queen - - -	\$2.00	\$1.00
Best nucleus of Caucasian bees with queen - -	2.00	1.00
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Specimen of comb honey, not less than 20 lbs., quality and manner of putting up considered -	2.00	1.00
Specimen of extracted honey, same conditions	2.00	1.00
Beeswax, most attractive display of not less than 10 lbs., bright yellow wax to have preference	1.00	.50

TENNESSEE STATE FAIR, NASHVILLE, SEPT. 21-26.

Superintendent, J. M. Buchanan, Franklin.

Special rules: 1. All products in this department must be pure, and free from adulteration. 2. Exhibitors at time of making entry must file a statement with the superintendent that the honey and other products they exhibit were produced in their own apiary.

Best 10 pounds extracted honey in glass	\$10.00	\$ 7.00	\$3.00
Best display of extracted honey, 50 pounds or more	20.00	10.00	5.00
Best case comb honey, 12 pounds or more—quality and appearance to count	10.00	7.00	3.00
Best display comb honey, 50 pounds or more	20.00	10.00	5.00
Best 5 pounds granulated honey	5.00	2.00	1.00
Best one-half gallon honey vinegar	5.00	2.00	1.00
Best display beeswax, 25 pounds or more	10.00	7.00	3.00
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Nucleus of golden Italians	5.00	2.00	1.00
Nucleus of Caucasians	5.00	2.00	1.00
Nucleus of Carniolans	5.00	2.00	1.00
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BEE READY!

Do you know, Mr. Bee-man, that there will be a fall flow again this year? Remember how you got left last year by getting caught without supplies? I have Root's goods by the carload and can get them to you sooner than the "other fellow." Free catalog.

E. W. PEIRCE, ZANESVILLE, O.

Italian Queens

GOLDEN AND CLOVER STOCK.

Choice queens, 75 cts. each; six for \$4.00, or \$7.50 a dozen

GEO. W. BARNES, Box 340, Norwalk, O.

ITALIAN QUEENS

Large prolific queens of the Moore strain. Nice to handle, and good workers. Untested, 60c; 6 for \$3.25; doz., \$6.00, now going by return mail. **S. F. TREGO, Swedona, Ill.**

HARDY GOLDENS!

Yes, I have them, and they are hardy—winter well, very gentle, and extra good hustlers. I know many goldens are the reverse of all this. I also know why, so do the breeders who sell them. My prices are high; but, every thing considered, they are cheap (see June 15th issue). I sell 20 goldens to one of any other race. Untested queen, \$1.00; select tested, *guaranteed*, \$2; tested, 3-band, \$1. **C. Oscar Fiuahary, Sandusky, W Va**

CARNIOLAN, BANAT, AND CAUCASIAN QUEENS

Home-bred, \$1.00 each; five at 80c each; Imported, \$4.00 each.

FRANK BENTON, - Box 17, - WASHINGTON, D. C.



RED-CLOVER QUEENS

200 lbs. honey from my breeding colony. Mostly red-clover honey. Untested queen, 65 cts.; tested, \$1.00; doz., \$7.00. Four-frame nuclei and fine tested queen, \$4. **G. Routzahn, Biglerville Pa.**

TRY SOME OF MY RED-CLOVER AND GOLDEN QUEENS

Italian strain, untested, 50c each. Mailed promptly; safe arrival and satisfaction guaranteed. Send for prices of breeders and tested queens. **M. BATES, Greenville, Ala., R 4, box 29.**

**"A cent to
two cents
per pound
extra."**



A prominent and reliable commission merchant was looking at two different lots of honey of about the same grade standing side by side, only one lot was packed in "Root Quality" cases. He remarked that he could sell the honey in the Root cases for a cent to two cents per pound EXTRA because of the attractive appearance the *case gave the honey.*

The difference in cost in packing honey in the "Root Quality" case or in the no-quality kind is from *one-eighth to one-twelfth* of a cent per pound. You can't *afford* to use other than the *best*. We sell "Root Quality" cases in Michigan. Order now.

**M. H. Hunt & Son,
Lansing, .. Mich.**

INDEX TO ADVERTISEMENTS.

Agricultural Implements.	Toepperwein, U. & M.....1011	Wurth, Daniel.....1023	Honey-packages.
Electric Wheel Co.—cover.	Weber, C. H. W.....975	York & Co.....983	Sackett, H. A.....979
Banking by Mail.	Woodman, A. G.....1020	Books.	Household Specialties.
Savings Deposit Bank.....980	Bees and Queens.	Franklin-Turner Co.....983	Best Light Company—cover.
Bee-supplies.	Bates, M.....981	Classified Advertisers.	Land for Sale.
Blanke & Hank.....985	Barnes, G. W.....981	Bees and Queens.....1026	Picquet-Hatrich Realty Co1019
Bondonneau, E.....984	Benton, F. J.....1023	Bee-keepers' Directory.....1027	Miscellaneous.
Cary, W. W., & Son.....978	Bloch, D. J.....1023	For Sale.....1027	Mugler Engraving Co.....1019
Daniels, F. R.....1020	Case, J. B.....1022	Help Wanted.....1027	Patents.
Falconer, W. T.....1030	Case, J. B.....1022	Honey and Wax Wanted.....1026	Williamson, C. J.....1019
Grafman & Brother.....1019	Fluharty, C. O.....981, 1023	Honey and Wax for Sale.....1026	Potato Machinery.
Grainger, E. & Co.....984	Graves, E. M.....1022	Poultry.....1027	Potato Implement Co.....1019
Griggs Brothers.....979	Hafford, E. H.....977	Real Estate for Bee-keepers1027	Publications
Hilton, George E.....1020	Hand, J. E.....1022	Wants and Exchange.....1027	American Bee Journal.....983
Howkins & Rush.....978	Koepfen, Charles.....981	Comb Foundation.	Practical Farmer.....1019
Hunt & Son, M. H.....981	Laws, W. H.....1023	Dadant & Sons.....1030	Saws.
Jenkins, J. M.....1020	Martin, L.....1022	Dittmer, Gus.....1020	Barnes & Co.....1019
Jepson, H. H.....979	Miller, I. F.....1023	Ham-fasteners.	Sprayers and Pumps
Minnesota Bee Supply Co. 983	Moore, J. P.....1023	Cooner & Fortune Co.....1019	Myers, F. F.—cover.
Mondong, C.....976	New Century Queen-rearing	Honey-dealers.	Stoves and Ranges.
Muth, F. W. Co.....977	Co.....962	Griggs Bro's & Nichols... 979	Majestic Stove Co.—cover.
Nebel, J. & Son.....983	Quirin, H. G.....1022	National Biscuit Co.....977	
Nysewander, Joseph.....985	Robey, L. H.....1023	North, Jay.....977	
Peirce, E. W.....981	Routzahn, G.....981	North & Segelken.....977	
Pouder, Walter S.....986	Shaffer, H.....1022	Hildreth & Segelken.....977	
Prothero, John A.....985	Shuff. Wm. A.....1023	Hutchinson, W. Z.....979	
Root Co., Syracuse.....984	Taylor, J. W. & Son.....981	Israel, Chas. & Bros.....977	
R. ot Co., St. Paul.....99	Tector, S. F.....981	Wright, H. R.....977	
Stringham, I. J.....1020	Viggo, W. O.....1023		
Texas Seed and Floral Co. 985	Wardell, F. J.....1023		

IOWA STATE FAIR, AUGUST 20-28, AT DES MOINES.

1. Bees shall be in one-comb observatory hive with glass on both sides.
2. In awarding premiums in the different entries of honey the judge will give equal consideration to the quality of the honey and to the style of package in which it is exhibited as regards beauty and desirableness for purpose of marketing.
3. If there is only one exhibit in any specified article, and if in the opinion of the judge it is not worthy of first premium, he may award second or third, or none at all.
4. Exhibitors at the time of making entry must file a statement with the secretary that the honey and wax they exhibit were produced in their own apiaries.
5. Only one entry will be allowed any exhibitor for any one premium.

Largest and best display of comb honey, not less than 300 pounds	\$20	\$15	\$10
Largest and best display of extracted honey, not less than 100 pounds	20	15	10
Case of comb honey (clover or linden), not less than 12 sections	4	3	1
Case of honey (fall flowers)	4	3	1
Extracted honey (clover or linden), 10 pounds	4	3	1
Extracted honey (fall flowers), 10 pounds	4	3	1
3 frames comb honey for extracting	3	2	1
Display of beeswax, not less than 20 pounds	6	4	2
Display of designs in beeswax	6	4	2
Golden Italian bees, with queen	4	2	1
Dark Italian bees, with queen	4	2	1
Carniolan bees, with queen	4	2	1
German bees, with queen	4	2	1

SWEEPSTAKES.

Largest and most attractive display of comb and extracted honey, wax, bees, implements, etc., owned by exhibitor 25

Note.—Clubbing together of exhibitors to make this display will not be permitted.

WISCONSIN STATE FAIR, MILWAUKEE, SEPT. 7-11.

Judge, Frank Wilcox.

Premiums open to all, but exhibit must be the product of bees of exhibitor.

Most attractive and finished display of comb honey	\$12	\$10	\$7	\$2
Case white comb honey, 12 to 24 pounds	8	6	4	2
Case amber comb honey, 12 to 24 pounds	8	6	4	4
Display of honey in extracting frames	5	3½	2½	1½

Most attractive and finished display of extracted honey	12	10	7	4
Case extracted white-clover honey, 12 pounds or more, in glass, labeled	8	6	4	2
Case extracted basswood or linden honey, 12 pounds or more, in glass, labeled	8	6	4	2
Case other white extracted honey, 12 pounds or more, in glass, labeled	8	6	4	2
Case extracted amber honey, 12 pounds or more, in glass, labeled	8	6	4	2
Display extracted honey, granulated or candied	8	6	4	2
Beeswax, best quality, 10 pounds or more	6	4	3	2
Honey vinegar, not less than one gallon, in glass	4	3	2	1
Nucleus of golden-yellow Italian bees and queen	8	6	4	2
Nucleus of dark or leather-colored Italian bees and queen	8	6	4	2
Nucleus of Carniolan bees and queen	8	6	4	2

GRAND SWEEPSTAKES.

Largest, best, and most attractive exhibition in this department, all things considered 15 12 9 6

FARMERS' EXHIBIT.

Exhibitors in numbers 2 to 17 inclusive can not enter exhibits in "Farmers' Exhibit."

Case white comb honey, 12 to 24 pounds	3	2½	2	1
Case amber comb honey, 12 to 24 pounds	3	2½	2	1
Case dark comb honey, 12 to 24 pounds	3	2½	2	1
Case white extracted honey, 12 pounds or more, in glass	3	2½	2	1
Case amber extracted honey, 12 pounds or more, in glass	3	2½	2	1
Case dark extracted honey, 12 pounds or more, in glass	3	2½	2	1

FARMERS' SWEEPSTAKES.

Largest, best, and most attractive exhibition in this department, all things considered 8 6 4 2

Most original and attractive design in comb honey	4	3	2	1
Most original and attractive design in beeswax	4	3	2	1
Candies made with honey, quantity, quality, and display considered	5	3	2	1

DEMONSTRATION.—(Open to all).

Competitive live-bee demonstration; each contestant to furnish his own demonstration cage	20	15	10	5
---	----	----	----	---

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You can have all the books you need by our plan. Write for that beautifully illustrated and descriptive book. "A Book to read in your home." It is free. Write today. We guarantee quality and value. Our prices the lowest. Write for Catalog. It is free. The largest mail order Book house in the world. 48 years in business.

Dept. GB28 THE FRANKLIN-TURNER CO., 65-71 Ivy St., Atlanta, Ga.

WHAT'S THE USE OF HAVING FINE HONEY IF IT IS IN POOR PACKAGES?

If you are among the fortunate ones who have secured a good crop of honey, surely you will not be so unbusinesslike as to sell it in second-hand or inferior cases. Your honey will sell far easier in nice new cases or tins. **WE HAVE THEM.**

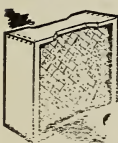
John Nebel & Son Supply Co., High Hill, Mont. Co., Mo.

BEE KEEPING

will be a profitable industry this season.

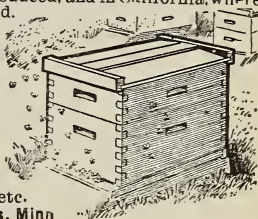
Honey is high—short crop last year. The shortage of the honey crop for 1907 in the United States warrants bee-keepers to increase their colonies. About a half crop was produced, and in California, where the cheap honey comes from, only a quarter of the average crop was produced.

Get Ready Now for More Honey



Let us send you our catalog. We are manufacturers and sell only our own make of bee-supplies. Minneapolis is the largest lumber-distributing point; the Mississippi river furnishes us power, and our organization and labor conditions are the best for economical production. Send us an estimate of your requirements and let us give you prices. We have a large stock of standard bee-supplies on hand. Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Comb Foundation, Smokers, Extractors, Shipping-cases, etc.

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Our Standard bred Unt. std. Italian Queens are very superior, and give satisfaction. You should have one or more of them. Prices till October 1, by return mail: 1 for 75c; 3 for \$2.10; 6 for \$4.00. Or send \$1.00 and this coupon and we will mail you one queen and the *American Bee Journal* a whole year (Bee Journal alone is 50 cts. a year). Sample copy free. Send all orders to

George W. York & Company

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Chicago, Illinois



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THE A. I. ROOT CO.
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Bee Appliances**

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**BEE-KEEPERS
of CANADA.**

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

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Deer Park, Toronto, Ontario, Canada

Canadian agents for The A. I. Root Co., Medina, O., U.S.A.

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la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU,

Agente Général

POR TODA EUROPA Y COLONIAS,

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Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

"If goods are wanted quick, send to Pouder."

Established 1889

THE PERSONAL ELEMENT IN BUSINESS

By the Bee Crank.

The big corporations of the day are like monstrous machines in which men are only cogs in a wheel. When a court of justice undertakes to discipline them it finds difficulty in locating personal responsibility on any one, from president to office boy.

My bee-supply business is not run in this way. True, I do not do everything myself. I am fortunate in having competent assistants. But I keep in touch with every transaction, and you may be sure that your order, whether large or small, receives my own personal attention.

This explains why "If goods are wanted quick, send to Pouder," you get them quick. If you have experienced the other kind of service and believe, as hundreds of my patrons do, that the personal attention of the man you deal with is worth while, send me your next order as a trial.



I have a full line of Root's standard goods in stock, ready for immediate shipment. I sell them at factory prices and give you Pouder service. Just now the demand is for shipping-cases, sections, and honey-jars, and I am prepared.

Better send for my catalog if you haven't it. If more convenient, order from Root's.

Beeswax.—I have a large demand, and can use all you have to spare at 28 cents cash or 30 cents in trade, delivered here.

Hoosier-Italian queens, reared during the warm honey season. Untested, 75 cents each; select untested, \$1.00.

WALTER S. POWDER, Williamsburg, Ind.
Dear Sir:—I earnestly hope the foul-brood measure will become a law. It would be a great thing for Indiana, and I would feel like taking hold of the business in a much more earnest way. I have taken nearly 2000 pounds of comb honey from 18 colonies this season, and the bees are Walter S. Pouder's Hoosier-Italians. Truly yours, THOMAS A. OLER.

Walter S. Pouder,

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio

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VOL. XXXVI

AUGUST 15, 1908

NO. 16

STRAY STRAWS

DR. C. C. MILLER

R. F. HOLTERMANN thinks it important that no young brood be present where a queen is to be introduced, p. 932. In Germany the opposite view is held. Which is right? [Who else has any thing to offer on this question?—Ed.]

WHEN BEES put butt-combs between two supers of sections they are generally of pure white wax; but sometimes I find them quite dark, when, so far as I know, the sections above and below are all right. Do the bees bring up dark wax from the old brood-combs, conclude it's too bad to darken the pretty sections, and end by dumping it between the supers?

A YIELD of 174 sections from a single colony before the close of July is something that doesn't happen every year "in this locality." This year it has happened, and the bees are still pegging away as if doing their best to kill us with work. We're still alive. [This would indicate, doctor, that you have had a good season. If one of your best colonies gives a yield of 174 sections, your average must have been high. Would you be kind enough to tell us what it was?—Ed.]

DR. S. P. SCHROEDER thinks he has positive proof that the bees and not the queen do the killing of the other queen. Over a brood-chamber was an excluder, then an extracting-chamber covered with wire cloth, over which was a nucleus which reared a young queen. After the young queen had been laying a week or more the wire-cloth was replaced by an excluder. The next day he looked for her, but she lay dead on the upper excluder. Most certainly in this case the queen was killed by the bees, for the queens could not get within several inches of each other. Pretty clear proof. [The proof here is quite conclusive. We should be glad to hear from any others who have been able to make any accurate observations on the point.—Ed.]

EVER NOTICE that bees are more particular about the combs they put brood in than about those they put honey in? Give a colony a comb which is so bad that it is a question whether it will be accepted at all, and the bees will first use it for honey, and afterward for brood. Does the honey help to soften the comb? Even foundation is often drawn out and used for honey before being used for brood. Colony No. 101 had distinguished itself as a honey-producer, and I wanted a freshly built comb of brood from that colony to start queen-cells from. If I gave an empty frame it would be mostly filled with drone

comb. So I gave a frame filled with worker foundation. It was promptly drawn out and filled with honey, but not an egg was laid in it till 15 days after it was given. [Yes, we have noticed just what you have described.—Ed.]

LATELY I've been taking a lazy way to introduce queens. Instead of putting the caged queen between the brood-combs or over the top-bars I just stick the cage in the entrance. Then after leaving her fast in the cage for three days I take out the cage and uncover the candy so the bees can let her out. That's much easier than to open the hive to get at the cage, especially if there are four to six supers on the hive. Then at any time I can easily see whether the queen is out of the cage, for it occasionally happens that a queen stays in the cage for days after the bees have eaten out the candy. Then, too, there may be some advantage in the position of the cage, for Mr. Doolittle has told us something to the effect that the bees feel the presence of a caged queen more if she is caged near the entrance. At any rate, I have tried it in at least eight cases, and it worked all right. [We believe this plan is all right, and may be safely practiced in the case of medium-priced queens.—Ed.]

YEARS AGO, on hot days my bees hung out in great clusters. Just been down to the apiary, this July 30, 11:30 A.M., with the thermometer 93 in the shade, and not a single colony hanging out. Entrances are much larger now than formerly, super-room more abundant, and there is ventilation at the top of the hive back of the super. Don't know of any thing else to account for the difference.

2:40 P.M. Thermometer now 99 in the shade, but not a colony hanging out. [More and more the evidence is accumulating, to the effect that top and bottom ventilation in the height of a honey-flow as here described may be profitably used in preventing the clustering-out and keeping all the he bees at work. It used to be said that top ventilation of a super should not be tolerated for a moment; but so many of our good men have found to the contrary that we may well stop to consider whether the old dogma should not now be laid aside. In this connection, also, more and more proof is coming in that a large entrance during the height of the honey-flow is an advantage, although there are some good bee-keepers who claim that the old entrance, $\frac{3}{8}$ inch deep, is amply large.—Ed.]

IN POOR SEASONS I've often known a bait section in a super to be filled and other sections untouched. This year it happened in a flood of honey. A weak stray swarm took possession of some idle combs. I straightened it out and gave

it a super with a bait comb. It filled the bait and sealed it before touching the other sections.

OPINIONS differ as to whether a colony will swarm out with a virgin on her bridal trip and never return, leaving the colony queenless. This year No. 25 sent out a swarm, and I had reason to know that it had a virgin queen. I hived the swarm, gave it a frame of brood, set it on top of its old hive, and when the queen began laying I united it with the colony below, which had remained queenless. No. 97 swarmed out in the same way, and clustered on a tree. I knew it must have a virgin, but I left it to its own devices. In a quarter of an hour—may be half an hour—it returned of its own accord, although part of the cluster remained till the next day. No. 69 did about the same thing. Query. If I had not hived No. 25, would it have returned of its own accord, or would it have left for parts unknown? Please understand, in each of the three cases it was not merely a small escort accompanying the queen, but a rousing big swarm. [Your experiment seems to favor the view that a swarm will not go off, leaving nothing in the way of a queen or cell in the parent hive. Has any one else any positive evidence to offer on the subject?—ED.]

EDITORIAL

By E. R. Root.

A BEE-KEEPER'S DICTIONARY.

THE *American Bee-keeper* has expressed the opinion that there would be a demand for a bee-keeper's dictionary. Mr. W. K. Morrison, of this office, has carefully compiled such a volume, adding a lot of lately coined words as well as all those in current use in various parts of the country among bee-keepers. It has been off the press now for nearly a year, and is filling a long-felt want.

A HIVE-LIFTING WHEELBARROW.

ON page 997 we present drawings of a hive-lifting wheelbarrow which we believe might be made very effective, although we have never tried it. But the trouble is, that many bee-yards are located on uneven ground, where it would be impracticable to use an outfit of this kind. Some apiaries are located in back yards, where the room is very limited. In these the hives would necessarily have to be arranged so close together that it would be impossible to use a wheelbarrow of any kind.

BE CAREFUL TO WHOM YOU SELL YOUR HONEY.

THE season for marketing honey has begun. While it may seem like an unnecessary repetition, we desire again to caution you to be careful to whom you send your honey. When you sell for cash, be sure that your man is responsible. If you can not learn any thing about him, you had better sell on commission; for then he can be held liable if he takes your honey without rendering you returns. But he may make very meager returns, and delay making payment. So we advise you not to trust any one unless he has a good rating and a reputation for dealing on the

square. Better take a little less price, and deal with a man of known reputation.

EXTRA-YELLOW ITALIANS REPORTED GENERALLY CROSS.

WE are getting complaints from all over the country, to the effect that extra-yellow bees are much crosser than the old-fashioned hybrids of blacks and Italians. This has been our experience year after year; but, strangely enough, we are compelled to furnish this yellow stock because the trade will have it, in spite of its bad temper and also its lack of hardness. While there are some strains of extra-yellow blood that are gentle and hardy, they are the exception. So far as experience has shown us, there is nothing better than the old-fashioned leather-colored Italians; and we are inclined to believe that a little admixture of black blood improves them for honey.

A VISIT FROM A RUSSIAN GOVERNMENT OFFICIAL.

WE had the pleasure of a visit from Mr. Dmitry Arcibasheff, manager of the Farm Implement Bureau of Ministry of Agriculture of St. Petersburg, Russia. He was accompanied by Mrs. Arcibasheff, and the two were making a rapid tour through the United States, stopping off but a few hours at Medina.

We found Mr. and Mrs. Arcibasheff very intelligent and interesting people. They were gathering data on the subject of bee culture with a view, probably, of carrying it to Russia.

The Russian government has already taken a lively interest in the general subject of bee culture. It was only recently that it appointed Mr. Abram Titoff as apicultural expert with headquarters at Kieff.

BOUNTIFUL RAINS AND DROUTH.

WE have been having some bountiful rains in this locality. Only once had we begun to feel the pangs of drouth; but that was almost immediately followed by a long and copious rain. White and alsike clovers are still out; for every time we get a rain like those we have been having, it seems to start the blossoms out again.

A recent trip through Southern Michigan showed that that State had been suffering from a severe drouth; and we observed that, along the line of the Pere Marquette Railway, the grass had been burned down; and as the train whizzed by, every now and then we could see the burning fences or burning grass. The crops, too, were beginning to show a lack of rain. Reports show that there is drouth in many parts of the country.

THE HONEY-MARKET SITUATION.

VERY little has developed new other than as reported in our last issue, page 930, except that quite a number of discouraging reports have come from the State of New York. But there has been a good crop of clover honey in the clover belt as a whole. In some sections of it, however, the season has been poor, especially in parts of New York and Maine. The fruit crop, in spite of statements to the contrary, seems to be very meager in many of the States; and this will have a tendency to make the market for honey

more stable in spite of the large crop of honey that has been secured. Reports from everywhere show that clover honey this year is of exceptionally fine quality. It has been an old-fashioned clover year.

In Eastern Colorado the indications show that there will be a fair crop. As to the Western part of the State the following letter will explain:

The western part of Colorado has had but a very light flow from alfalfa, and unless we have rain there will be no flow from sweet clover. GUY CLARK.

Crawford, Col., July 26.

DANGER OF ROBBING AT THIS TIME OF THE YEAR; THE VALUE OF THE ROBBER-TRAP.

Now is the time to avoid robbing. Nothing costs the bee-keeper more than to let a bad case of robbing get started; for so long as these robbers exist at all they will continue to annoy both the bee-keeper and the weak colonies. We do not nowadays intend to let robbing get started; but if it does, we use the robber-trap. This is nothing more nor less than a common hive with a Porter bee-escape so arranged at the entrances that the robbers can pass into the hive but not out again. Something more effective than the Porter for this purpose is a long flat wire-cloth cone, the apex of it reaching about to the center of the bottom-board. The robbers will enter this better; and as the point of the cone is so far from the entrance they do not find their way back. This trap is put on the stand of the robbed colony, when, presto! they are caught. When the robbers are once trapped they should be taken immediately to an isolated location or brimstoned. Having once acquired the stealing habit they will do tenfold more damage in a beeyard than they can ever do good, and it is "a mighty good riddance" when they are removed entirely.

SUSPENSION OF THE "AMERICAN BEE-KEEPER."

THE announeement appears in the August issue of the *American Bee-keeper* that that number will be its last. In extending words of good by, the editor, Mr. Harry E. Hill, offers his thanks to friends and collaborators in this very nice way:

GOOD BY.

To every thing earthly there must be an end. So far as the present editor and publishers are concerned, the end of the *American Bee-keeper* has been reached. This is the last edition of the *Bee-keeper*, and I wish to express my sincere appreciation of and gratitude for the courtesies of my numerous readers whose kindnesses enabled me, during the first eight years of my connection with the paper, to increase its subscription-list from six hundred to nearly three thousand copies a month. Memories of these friends will always be recalled with pleasure.

After nearly eleven years of pleasant associations with the bee-keeping brethren of the English-speaking world, as editor of the *Bee-keeper*, it is with a feeling of profound regret that I bid them good by, and to each and every one of my readers I wish a full measure of success and happiness.

For several years past, other business interests have claimed my full attention, and I have repeatedly rendered my resignation to the publishers. This has always been met by the question, in substance, "What will you take to stay with us?" I was compelled to name my price, and it was always promptly conceded. This old round world never held two more whole-souled, honorable, conscientious, and worthy business men than W. T. Falconer and D. E. Merrill, who have been my employers in this work, and I naturally wished to do all in my power to reciprocate their courtesies in business, and I held on.

Mr. Hill is a good bee-keeper and a ready writer. He has an easy-flowing, forceful style, and his stepping down from the apicultural field of bee buzzings will be regretted. We trust that

we may hear from him occasionally through other mediums now published. He has other business interests outside of bee-keeping, and long since desired to be relieved.

The untimely death of Mr. D. E. Merrill, of the Falconer Co., mention of which we made on page 757, June 15th issue of this journal, so increased the responsibilities of Mr. Falconer that he did not care to continue the publication of the paper. It is announced that all subscription moneys paid ahead will be refunded as soon as it is practicable to do so.

CYRENIUS' CLIPPED TURKEY FEATHER FOR BRUSHING BEES.

MR. F. H. CYRENIUS, of Oswego, N. Y., of whom mention was made on page 928, last issue, while here at Medina, inquired if we had ever used a turkey feather for brushing bees off from combs.

"Yes," we said, "that is older than the hills."

"But," he said, "the feather I use is trimmed down to within $\frac{3}{8}$ inch of the midrib. This makes the bristles stiff, and, unlike a brush or broom, it does not roll the bees off from the combs, making them angry, but *lifts* them off their feet—the stiff spines of the feather passing right under them."

He has sent a sample trimmed as he recommends. If you can imagine a long stiff turkey feather with the soft portion on either side trimmed down to within $\frac{3}{8}$ inch of the quill or midrib, you will have his improved brush. He calls attention to the fact that this brush is so light that it can be carried over the ear like the old-fashioned quill pen of the schoolmasters of yesteryear.

We suggest that some of our extracted-honey men try the clipped-quill brush, and report how they like it.

A GOOD SCHEME FOR EMPTYING COMBS CONTAINING ODDS AND ENDS OF HONEY, WITHOUT THE USE OF THE EXTRACTOR.

ON reading this heading you may say there is nothing very wonderful about this—that all one needs to do is to scatter the combs, after the honey-flow, around in the yard where the bees can get at them, when they will very soon clean them up. Y-e-s; but it causes more or less of an uproar; and after the honey is gone, the bees are likely to pounce upon weak nuclei or to sting viciously. We would not advise practicing this near a public highway unless the combs would be emptied along about nightfall. They should then be taken away. During the night the bees will recover to a great extent from their excitement, and will be less likely to cause disturbance next morning.

The suggestion has been made to remove all such combs some rods away from the yard. This is far better than exposing them in the apiary itself. But even this has its disadvantages, for it will take some hours before the bees find the honey. Feeding syrup outdoors is good; but one should generally use a feed made of water and granulated sugar, two of water and one of sugar; and that syrup should be placed in feeders so constructed as to permit the bees taking it only very slowly. When so arranged the rob-

bing of other hives can be entirely overcome. Indeed, one can do extracting at such times without a robber appearing, even though it be during a dearth of honey; but for the purpose of extracting, one should use honey diluted with water.

The scheme we had in mind, however, for emptying out old combs containing odds and ends of honey, and perhaps a sugar syrup which can not be marketed, is on a plan somewhat modified from those described above. Our Mr. Mell Pritchard, who has charge of our north yard, had quite a lot of combs, some of them filled with the sugar-and-honey mixture—a combination which, obviously, can not be used for the market. He did not care to mess up the extractor, as he had only a few of them; and even if they were extracted they would be wet; and when the bees cleaned them up they would put some honey back into them again, and, besides, some of the combs would be undesirable, fit only for the melting-tank. He placed a number of these about nightfall in front of the hives, one frame in front of each entrance. A little later, after a few bees had clustered on the combs, he put them in hive-bodies and carried them about a quarter of a mile from the apiary, and set them down. The next morning those bees, filled with honey, of course, flew homeward and deposited their loads, and went back for more, and so until the combs were completely emptied.

But you may say that this operation involves as much work as the use of the extractor. Perhaps; but it has the merit of making a genuine honey-flow so one can carry on some special work in opening the hives which he may have in mind. So far from making a general uproar it makes absolute quiet in the yard, and takes care of all the robbers. In this way Mr. Pritchard emptied out quite a bunch of combs. Those that were good he could use over again in feeding to produce cells, and the others were consigned to the scrap-heap, and melted up.

But he had one other plan that worked very well. He put a comb of honey in a shallow box having a passageway connected with the entrance of the hive. The object of covering the comb was to keep away outside robbers, and at the same time permit the inmates of the hive to rob out the honey slowly. This comb feeder worked very well, especially in the case of combs that are imperfect, or which contain only a small amount of honey. In fixing bees up for winter it is not desirable to give combs containing only a little honey.

UNCAPPING-KNIVES; SHOULD THEY BE HOT OR COLD FOR UNCAPPING?

We have been making some experiments in testing hot and cold knives heated in hot (not boiling) water, kept so in a pan over a small kerosene-stove. Where the honey is thick, and the comb new, the hot knife is unquestionably better than a cold one for taking off the cappings, for the reason that the latter is quite likely to break down the cell walls of tender comb. When it comes to old combs, a sharp keen-edged cold knife will do very good work; but a hot blade, not quite hot enough to melt the wax, will do faster and better work. But the trouble is, the

knife cools quickly, and then it must be exchanged immediately for another one just out of the hot water. This consumes time; and it is a question whether, with old combs at least, some of our producers would not think they could work faster with a cold knife provided the edge was very keen. We should like to get some expressions from our subscribers who have had considerable experience in uncapping.

THE TERRIBLE AFFLICTION THAT HAS COME TO E. W. ALEXANDER.

OUR friends have probably noticed that Mr. Alexander has not written very much of late. This has been owing to his poor health. But we did not suppose that there was any thing serious until the following letter came.

We wrote Mr. Alexander, asking certain questions, and toward the close of his letter, which was dictated, he writes:

Friend Ernest:—This is the first letter I have tried to dictate in a long time. I have been sick—oh, so sick!—that I have been able to walk only a few rods at a time around home. I returned from the hospital on Friday, where I was attended by six of the most eminent doctors and surgeons of this State. They all agreed that my trouble was incurable; that an operation might prove fatal—it certainly could do me no good. They advised me to go home, settle up my business, and live wholly for to-day. I have not opened a hive of bees since they were taken from the cellar last spring, and have been but very few times in the beeyard.

E. W. ALEXANDER.

—Delanson, N. Y., July 29, 1908.

We feel sure that all of our readers will be very sorry to hear this. Mr. Alexander has been a frequent and valued contributor, as many letters that have come to this office testify. Only three days ago Mr. Chalon Fowls, of Oberlin, Ohio, a prominent producer of extracted honey, remarked to H. H. Root, who was then visiting him, that the Alexander strainer for extracted honey was one of the best things he had ever tried. As soon as he saw a description of it in GLEANINGS he immediately had one made, and found that it answered the purpose perfectly.

There are several other useful devices as well as methods of management that Mr. Alexander has placed before our readers. While at times he may not have seemed orthodox, yet it must be remembered that he occupies a locality where conditions are peculiar not to say remarkable. Our friend is the only bee-keeper in the United States who has ever been able to manage from 700 to 800 colonies all in one apiary. Others have had as many as 500. While his location is peculiarly favorable for the keeping of a large number of bees in one place, yet the mere fact that his neighbors, with practically the same environment, do not keep more than 200, would seem to argue that there must be something in his management. He has freely given us of his ripe experience covering many years, and many who are using his ideas will hold him in grateful memory.

We desire at this time to pay tribute to a really great bee-keeper before his career shall be closed for ever. We say "great" because he is great in many ways. He is a broad-minded, large-hearted, lovable man, and many have been the pleasant hours we have spent with him and his family. To see and know the man has been indeed a privilege.

GLEANINGS FROM OUR FOREIGN EXCHANGES

By W. K. MORRISON

Some one in the *British Bee Journal* recommends the logan berry as a splendid plant for bees. California is the homeland of this berry, yet we have had no reports of any great results, though large areas are planted with it near Santa Cruz and Watsonville, California. Will somebody living there let us know its intrinsic value as a honey-plant?

The bee-keepers of the two Charentes held in July an international exhibition, lasting three days, of bees, bee-appliances, and honey, at Saintes, a town in France of about 20,000 inhabitants. This gives us a fair idea of the enterprising spirit which characterizes many of the European bee-keepers' societies. It takes a considerable amount of money and a great deal of work to conduct such a meeting; but it is worth it in the enthusiasm it creates.

THE LENGTH OF BEES' TONGUES.

Professor Kulyagin, of Russia, claims to have found a very accurate method of determining the length of a bee's tongue; and after many measurements he gives the following averages expressed in millimeters: Russian, 6.21; American, 6.22; Italian, 6.25; Cyprian, 6.50.

A DISTINGUISHED BEE-KEEPER.

Mr. E. Beuve, president of the Society of Apiculture for Aube, in France, has received from the president of the republic the Order of Merit (Agricultural) on account of his long and useful services to apiculture. He is teacher of apiculture in the normal school at Troyes. He commenced in 1858, and has kept for years 700 to 800 colonies, which is a very large number in a country like France.

TRANSVAAL BEE-KEEPERS' ASSOCIATION.

Johannesberg now has a full-fledged bee-keepers' association with the above name. Those at the top are the Earl and Countess of Selbourne; the Minister of Land, the Minister of Agriculture, and General Louis Botha. It is intended to have branch associations in the principal centers, and one is in course of organization at Pretoria. The conditions are suitable in South Africa, and in time the land of Angora goats and ostriches, diamonds, and gold will probably figure largely in the bee-keeping world. I note the colonists show a decided preference for American bee-supplies, in which they follow the example of other British colonies.

THE DEATH OF ZOUBAREFF.

The *British Bee Journal* recently announced the death of a famous Russian bee-keeper, M. A. F. Zoubareff, at the ripe old age of 87 years. He went to school with Pobedonostseff, Procurator of the Holy Synod of Russia, who died last year. Readers of the newspapers will remember it was Pobedonostseff who inspired the Czar to resist all

reforms. On account of his health Zoubareff went to Switzerland in 1883, and there became acquainted with Mr. Ed. Bertrand, who converted him to the Langstroth hive and system. Hitherto he had advocated the Dzierzon-Berlepsch system. He was largely instrumental in inducing the Russian bee-keepers to adopt the Langstroth hive. He wrote a book with this end in view, chiefly to instruct schoolteachers in our system. He also translated Mr. T. W. Cowan's *Bee-keepers' Guide Book* from French into Russian, and otherwise worked faithfully to help Russian bee-keepers find the most profitable system of bee-keeping. He lived close by Lake Ladoga, not far from St. Petersburg.

THE FRENCH SOCIETY OF APICULTURE.

There was a general assembly of the French bee-keepers' societies held at 61 Lafayette Street, Paris, March 31. The congress was presided over by Mr. Dumont, the vice-president. Dinner was served, the principal items of which were hydromel, honey ginger-bread, and pure honey. Probably the most important topic discussed was what the tariff on foreign honey should be. It is evident the French are afraid of foreign honey, and they intend appealing to the Chamber of Deputies for a higher tariff. They decided 30 per cent would be sufficiently protective on table honey; but for all others, particularly that used in bakeries, 50 per cent would not be too much. The matter of duties will come before the Chamber of Deputies during the political year of 1909, and it is expected they will be guided by what the bee-keepers have recommended.

PRICES OF HONEY AND WAX IN HAMBURG.

According to Mr. Richard Brückner, in *L'Apiculture Nouvelle*, the prices of honey and wax in Hamburg are as follows: California honey, 9 cents; Chile, $4\frac{1}{2}$ to 5; Cuba, 5 to $5\frac{1}{2}$; San Domingo, 5 to $5\frac{1}{2}$; Havana, 5; Mexico, 5. Beeswax from Benguella, 30 cents; Brazil, 30; Chile, 30; Cuba, 32; Madagascar, 29; Morocco, 30; Japan (vegetable wax), 10; Carnauba (palm wax), 31; and gray Carnauba, 22.

One might conclude from this that the Germans are getting some cheap honey; but the duty is high; and this, together with commissions and other charges, probably doubles the price before the consumer is reached. This is rather a pity, as the Germans are fond of honey, using it in many ways. There is no prospect that the duty will be lowered; on the contrary, the tendency is toward a high tariff, and the same is true of France. They do not believe in the doctrine, "Peace on earth and trade with all mankind."

BEES AND FRUIT.

The *Daily Mirror*, of London, has entered on a novel experiment to test the value of bees as pollinators of fruit flowers. It has installed on the roof of the *Mirror* office two hives of bees with the expressed intention of finding out the value of bees to flowers. It has also arranged to send experts around to observe the effects of the flowers. The secretary of the Royal Botanic Gardens said that the fruit-trees in gardens gave little or no fruit, though every possible attention was

given them and the blossoms were profuse. Failure to fruit he attributed to the lack of bees to pollinize the blossoms. He thought bees had a far greater effect on plant life than most people had any idea of. Frequently, he said, the want of fruit was attributed to the cold weather in spring when rather it was due to the dull and chilly days causing the bees to stay at home during the blooming period. This testimony is interesting, coming as it does from the largest city on earth, where smoke and grime gild every thing, even the flowers, fruit, and honey. No doubt the bees will "make good."



"WAX CRAFT," BY T. W. COWAN.

This is certainly the best book on beeswax which has yet appeared in English or any other language. It covers the whole subject in a manner which leaves little to be desired. The book itself is admirably printed and bound; in fact, it is a model of its kind—a credit to its publisher, L. Upcott Gill.

It commences with a historical sketch, giving a vivid account of the place of beeswax among the great oriental nations of antiquity, and following on to the present day. A beautiful illustration is given, as a frontispiece, of an encaustic wax-painting taken from Herculaneum. It is copied from a steel-engraving by F. A. David (Paris, 1780). Other illustrations of a like nature enliven the text and add materially to the value of the work.

Beeswax must have been an important article in the days of the Pharaohs, for on page 31 we read:

From a papyrus of Rameses III. we gather that payments were made from the royal treasury of sacrificial funds, such as the following:

331,702 jars of incense, honey, and oil;

3,100 teben of wax;

1,933,766 jars of incense, honey, fat, oil, etc.

In the times of Zoroaster, his worshipers burned candles in their worship of the sun-god. It was also done by the pagan Romans and also by the Greeks of Attica in honor of the god Ceres. Of course, the great Greek and Catholic churches use immense quantities of beeswax candles in their church services, and the worshipers of Buddha in Ceylon also consider wax candles indispensable. These candles have been used to light cities, for the Emperor Constantine ordered Constantinople to be lighted on Christmas eve by means of lamps and wax candles. In the city of Fez to this day the birthday of Mahomet is celebrated by every schoolboy carrying lighted torches of beeswax, some of them weighing as much as 30 lbs. In the early days of the Catholic Church, votive offerings were frequently made of beeswax; and it is related that the church of the Annunciation, in Florence, had its walls completely covered by them.

In ancient times beeswax was used as a medicine. Pliny says: "Every kind of wax is emollient and warming, and tends to the formation of new flesh; fresh wax is best. It is given in broth to persons troubled with dysentery, and the combs themselves are sometimes used in a pottage made of parched alica. Wax also counteracts the bad effects of milk; and ten pills, the size of a grain of millet, will prevent milk from coagulating in the stomach."

Both Herodotus and Strabo state that beeswax was used for embalming the dead.

It must be evident to the reader that the production of beeswax "in ye olden tyme" must have been very great, and it was. For example, in the year 181 B. C., Prætor Pinarius, after defeating the inhabitants of the island of Corsica, imposed on them an annual tax of 100,000 lbs. of wax, and two years thereafter doubled it. Again, we read that in 1632 John de Frettar, sexton of the monastery of Chaise Dieu, in France, stipulated for an annual rent of 600 lbs. of beeswax.

In London "The Worshipful Company of Wax Chandlers" was organized as early as 1371, and still exists, chiefly for ornamental purposes. It obtained a royal charter in 1483.

How the bee produces wax is fully described, but we need not here advert to it. One paragraph, however, is worth quoting.

Huber, after a series of experiments, several times repeated, proved that bees fed on honey and water produced wax; while, if fed only pollen, none was produced. He also showed that bees fed on sugar syrup were able to produce wax, and (after several consecutive trials) that those fed with syrup made of sugar made more wax than when fed on honey, brown moist sugar yielding the largest quantities. These results were corroborated by Dumas and Milne-Edwards, who in 1844 repeated Huber's experiments and found that 500 grams of sugar yielded 30 grams of wax, while the same quantity of honey produced only 20 grams. Other observers, such as Gundelach and Berlesch, have obtained similar results, so that Huber's conclusions may be considered as established.

Pages 53 to 72 inclusive are devoted to the subject of wax-rendering. Beeswax in commerce has a short chapter. Mr. Cowan states that the beeswax of Guadeloupe and Brazil will not bleach, but remain a mahogany color. This is not to be wondered at, for the bees of Guadeloupe and Brazil are stingless, producing quite a different kind of wax from ours. They produce beeswax almost the same as the kind we have; but they mix it with propolis to a considerable extent. It is interesting to know that the waxes of England, Hamburg, Odessa, Portugal, Mogador, Zanzibar, East and West Indies, and North America all bleach very rapidly, while those of Cuba, Danzig, Königsberg, Gaboon, and Gambia bleach with difficulty. Twenty-one pages are devoted to the subject of wax adulteration; and anybody who understands the subject will agree with me that the importance of the subject justifies it.

In chapter VII. Mr. Cowan carefully considers the manufacture of comb foundation. Coloring wax occupies chapter VIII.; wax candles and tapers have chapter IX.; manufacture of wax flowers has chapter X.; while chapter XI. contains 110 recipes in which beeswax is a prominent ingredient. Possibly this last is the most valuable part of the book, as one good recipe may be worth more than the price of the book.

We have long wanted a book of this kind. Beeswax is a very important object in commerce; it is almost equal to gold in all markets. Merchants anywhere are ready and willing at all times to take it in payment for goods, and the price fluctuates very little. It therefore deserves a very nice book.

Anything Mr. Cowan writes is worth reading; and this last proves that his pen has lost none of its cunning. It is a work which ought to be in every bee-keeper's library. For prices see Special Notices.

FANCIES AND FALLACIES

By J. E. CRANE

The testimony of E. W. Alexander as to the value of bees to farmers, page 642, should not be forgotten when neighbors complain of our bees.

FORMING NUCLEI.

The plan of forming nuclei from queenless colonies to make them stay in place, as given by Dr. Miller, page 622, May 15, is well worth remembering. It is a good practice, when we find any new method of management or manipulation, to put it to the test in a small way, and then we do not forget it.

PREVENTING LEAKAGE IN HONEY-JARS.

Mr. C. F. Smith is on the right track in using soft paper to prevent leakage in covers to tumblers filled with honey, page 624. I have often thought that if we had something like blotting-paper for the inside of caps like the Simplex and other jars, it would be far better than the hard board now sent with them. The soft paper gives, and a close joint is made.

KILLING MOTHS.

On page 571, May 1, Prof. H. A. Surface adds much to our knowledge for controlling the ravages of the bee-moth, and I have put his plan to the test and find it easily used. I have turned down a corner of that page so as to find it easily. The recipe is easily remembered, but it may be well to have his article handy to refer to, to be reminded of his cautions about using the dangerous drugs.

BOTTOM STARTERS.

The question raised by H. M. Jameson, page 643, as to why bees commence on bottom starters first, is interesting. He ascribes it to lack of heat; but as heat rises one would suppose it would be hotter at the top than at the bottom of the section. I think differently. It has seemed to me that the cause lies in the fact that some bees dislike to go far from their combs to start new combs. Many years ago I used boxes holding about four pounds of honey, with two starters of comb at the top, say 1½ inches square, with none at the bottom, and I found that certain colonies were much inclined to begin at the bottom. This was especially true of weak colonies and some strains of Italian bees.

BROOD AND HONEY IN THE SAME CELL.

I saw something new a few days ago. In transferring some young larvæ from a brood-comb to queen-cells for queen-rearing I found a cell among the brood nearly filled with honey, and a larva floating on the honey. The larva appeared to be about two days old, and I guessed that it had died from an unwholesome diet. Evidently some worker or workers had needlessly stored honey in a cell already occupied with brood. I do not remember ever seeing or hear-

ing of such a thing before. I have seen plenty of larvæ floating on honey, but it was where the clumsy hand of man had interfered by extracting both honey and brood together. Well, I think we ought to be charitable toward this one little witless bee for making such a mistake. The wonder is not that one has made a mistake, but that of the many millions of worker bees hatched, all know without teaching or experience how to feed the young larvæ by preparing just the right kind of food, and the exact quantity, as well as placing it in the right cells.

QUEEN-TRAPS VS. CLIPPED QUEENS.

It seems evident by the article on page 555, May 1, that R. L. Taylor does not intend to be led or misled by A. J. Halter, and on the next page Dr. Miller proceeds to prod him because he has dared to say that "clipped queens are an unmitigated nuisance at swarming time," and some other things. Well, I don't know much about the use of queen-traps; but it has seemed to me that the use of them on several hundred hives would be more "plague than profit" as an acquaintance used to say, and I could not well get along without clipping all my laying queens in spring, with apiaries many miles apart, and tall trees near. For all that, there is room for a difference of opinion between sensible people as to the value of clipping queens' wings. Talking with some extensive bee-keepers in Michigan last summer I expressed my surprise that they did not clip their queens' wings; but they showed me in about two minutes that they could care for their bees during swarming time with less labor if the queens could fly than if their wings were clipped, to say nothing of the labor of looking up all queens in spring.

It makes a good deal of difference whether you have several apiaries run for comb honey with many tall trees near by, or whether you have only one yard with a few small trees and shrubs, and are working for extracted honey. Those Michiganders are a splendid lot of men, but they have a way of doing their own thinking, and do not hesitate to take short cuts, even if not orthodox.

WIND AND WINTERING.

Which way shall we face our hives during spring weather? page 419, April 1—a live question, surely, and one that gives me a chance to say that wind plays a more important part in wintering and springing than most bee-keepers are accustomed to think. At the beginning of winter I had in my home yard 127 colonies to be wintered outdoors. I have just been looking them over, and find a loss of 15 colonies, nearly all during the spring. We have had one of the worst springs for bees I ever knew—almost constant heavy winds, either north or south, from March 15 to May 15, with the exception of the last week in April. Of the above number of colonies 24 faced north, 35 east, 30 south, 38 west. Of the dead colonies, 2 faced the north, 6 the east, 2 the south, and 5 the west. One of those that died facing north was robbed late in spring, and died from starvation. In proportion to the number of hives, the loss in those facing east was twice as great as in those facing

either north or south. I see no great significance in this, and believe chance had much to do with it.

But another matter has interested me greatly. My yard is about 40 feet wide, east and west, and 160 feet long north and south, and better protected from winds at the north than at the south end. I find that the loss in the north half of the yard was barely one colony, while in the south half the loss was 14. I also find that the colonies of the north half average much stronger, as a rule, than those at the other end. I have observed the same conditions in other years, although not, perhaps, so pronounced. Such facts hardly need comment. In selecting a site for bees, take one where the snow lies on the ground all winter without drifting, and then set facing any way you like.

BEE-KEEPING IN THE SOUTHWEST

By LOUIS SCHOLL

The Texas Bee-keepers' Association convened in annual convention at College Station, Texas, July 7, 8, 9, with a good attendance. Officers for the ensuing year are: F. L. Aten, Round Rock, President; J. N. Long, Pearsall, Vice-president; Louis H. Scholl, New Braunfels, Secretary-treasurer. This has been one of the most profitable meetings the association has ever had.



LIVE-BEE DEMONSTRATIONS.

If you intend to do any advertising, be there with the goods, so the people can see them; and then if you have the right kind of "gab" to go with it you'll do your advertising. Therefore live-bee demonstrations are great advertisers if the right person is in charge. Such a one was given last year at the Texas Farmers' Congress, and was so interesting we were requested to give it again this year.



THE SEASON IN TEXAS.

While some localities in Texas have had a failure in a honey crop, others have proven extraordinarily good. In our own localities here, numerous spring flowers, from early until late in the season, put the bees in the best possible condition; and although we did not have our usual April flow from the mesquite, horsemint and marigold made up for it and even continued longer, so that, when the second yield from mesquite began in early June, the bees were kept continually at work. Then before the mesquite flow was over, cotton honey was coming in with a rush, lasting throughout June and July; and the bees are still working steadily on this plant, of which there are thousands of acres within easy reach of all of my yards. So, all together, this has been an ideal year with those who are located as favorably as I am.

But the total yield for the entire State will be short, and prices will reign rather higher than before. Mr. Toeppewein writes:

THE PURE-FOOD LAWS AND HONEY PRICES FOR TEXAS BEE-KEEPERS.

The pure-food law, from a bee-keeper's standpoint, is one of the best and most important laws that have ever been passed. I never heard of a bee-keeper wanting to sell impure honey, and the consumer realizes this. Therefore, if the bee-keeper and consumer could deal directly with each other the bee-keeper would have no difficulty whatever in disposing of all the honey that he can produce at a good price. Much more honey would be consumed if the people could be sure that every pound they buy is pure. In Texas there was rarely any impure honey put up. The adulterated honey that was sold here was put up in other States and shipped in. Since the pure-food law is in effect this can not be done, and the consumers are aware of it; and for this reason we have a better demand for extracted honey than we formerly had. A great many people have bought comb honey because they want to be sure that the honey is pure; but the pure-food law has caused the demand for extracted honey to increase so that the difference between comb and extracted honey will be less. Many would just as soon have extracted honey as comb at the same price, or even prefer it, so long as they know it is pure. Others, who would not eat honey formerly, eat it now, and are willing to pay a fair price for it.

The only way I can sell honey is to show my buyers why it is profitable for them to handle it; and the way I do it is this: I guarantee that all the extracted honey has been heated to not less than 152 degrees, and that it will not granulate within 30 days from date of shipment. Then I put the price where they can move it, and when they are backed up with this guarantee they are willing to handle it.

Some bee-keepers will not heat their extracted honey, as it is too much trouble, and they say that they can find buyers who are willing to buy it just as it is taken from the hives. This was true the past spring before the buyers knew how fast certain kinds of honey would granulate. Then when this honey did granulate, these bee-keepers did not always take it back, but left it in the hands of the wholesale dealers, saying that it was in good shape when they sent it. Now, this may be true, and they be legally correct; but the buyers do not want to handle honey any more. Such business injures every bee-keeper in the State, and we should encourage our neighbors to heat every pound of extracted honey they sell, so it will not be likely to granulate within thirty days. If we give this guarantee, then we can readily dispose of our honey, and the price will go back to where it should be, and where it was this spring. If not, the demand for bulk comb honey will decrease.

We should encourage the use of bulk comb honey, as bee-keepers in other States do not put up much of that kind of honey, and naturally we have but little competition, while extracted honey can be obtained almost anywhere. We get more for our honey than bee-keepers in other parts of the country, as we have the demand for it right here in our own State and neighborhood. Our crop usually comes before honey is shipped in from other States, and this always helps us a great deal in holding a steady price on our prod-

uct. Bee-keepers should correspond, or have meetings and decide on a price, then make this known to the wholesale dealers, giving assurance at the same time that no producer will sell direct to the retailers, for such a practice ruins the wholesale trade every time. Under these circumstances, when the bee-keeper sells to the wholesale dealer he is sure of getting his money; whereas, if he sells to a retailer he loses an account occasionally, which loss about makes up the difference between the retail and wholesale prices. As a rule, the retailer is not going to pay a little honey account, as the surplus money he has usually goes to some wholesale house to which he is indebted. These wholesale houses have men who call upon him every week and collect from him. A bee-keeper, however, can hardly afford to go to the retailer's town to sue him; and this retailer, therefore, either defers the payment a long time and then says the honey was not as represented, and compromises for probably half; or he sometimes refuses to accept it, and the bee-keeper has to take the honey back, paying freight both ways.

Now, this happens right along, and the bee-keeper who tries it once usually does not try it a second time. This is bad business for the wholesale dealers, for they are willing to pay probably the same price for the honey, and are in position to sell it to these same retailers at a better price, thus giving them a profit for handling it, and in that way the price is held up. If the bee-keepers would follow the example of the onion-growers, selling all their honey to one or a few buyers at a set price, they would not glut the market; and with a steady price, and the goods put up properly, there would be no trouble whatever in disposing of all the Texas crop at a good profit.

UDO TOEPPERWEIN.

San Antonio, Texas.

CONVERSATIONS WITH DOOLITTLE

CLOSING UP THE SECTION-HONEY SEASON.

"As the close of the honey season for 1908 is drawing near, I wish to know how I can secure all the section honey possible, as I wish to make as good a show as I can this year."

"The approach of the close of the comb-honey season is always a time of importance to the apiarist. As he wishes to secure as much as possible, he puts on so many sections that very few of them are ever completed. All know that this is undesirable, but many have not learned enough by the loss to be able to stop it. How it may be prevented, or reduced as largely as possible, is a question worth considering."

"I know that is right; but how is it to be done?"

"By lessening the amount of surplus room, or by giving the extra room in such a way that the bees will not go into the sections unless they are crowded."

"But if I lessen the amount of room before the end of the honey-flow, would this not mean a serious curtailment of the season's crop?"

"Yes. But to go ahead and put empty supers under the full ones, the same as you did in the

height of the flow, is almost sure to result in a loss just as great. That is why the room should be given in such a way that the bees would not occupy it unless needed."

"How is that done?"

"By putting all supers used at this time of the year on top of those the bees are at work in, rather than under."

"I gave that a trial once, and I did not like it. I thought it reduced my crop of completed sections, and gave me a whole lot of unfinished sections at the close. The bees were slow in going into this upper super of empty sections, for they stayed on the sealed honey for some days, and then when they went into the upper super the season closed when but few of the sections were more than two-thirds full, so I had a whole super of unfinished sections to each hive."

"You should have removed the completed super when finished, or else put the empty one under it as soon as the first one was completed. It is more likely, however, that you did not put the empty super on top soon enough. I have never had an experience like that in putting the empty supers on top."

"You do not put on a second super till the one already on the hive is completed, do you?"

"Surely. If you wait till the first super is finished, a loss is always sure to occur. As soon as any cells are sealed, more room should be added. In the beginning, or during the height of the season, it does very well to put the empty super under the first, although of late years I put all supers, after the first, at the top. But when nearing the close of the season they should *always* be put on top as soon as the bees begin sealing the cells in some of the sections below."

"That is something new to me. I supposed that no more room was needed until the sections already occupied were nearly or quite completed."

"It is well to gauge as carefully as possible the storing strength of the colonies and the probable duration of the flow, neither contracting unduly nor giving room recklessly."

"Is it ever best to remove the completed sections from any super until all the sections in the super are finished?"

"This would depend quite a little upon how much time you have at your command. If you have plenty of time there is no doubt that it would pay. Before I went into the queen-rearing business I used to go over the apiary once a week and remove all of the finished sections from any super which had one-third or more of the sections completed."

"Did you put the empty sections in the place of those taken out?"

"No. The partly finished sections which are left should be massed together in the center of the super, and new ones put on either side, so that we may get as many completed as possible should the season stop short at any time. This precaution will very largely reduce the number of sections which are nearly or quite filled, but not completed, and these make the matter of unfinished sections so aggravating."

"I think I understand this matter better than I did, so let us suppose the end of the season has arrived and I have a lot of unfinished sections—how shall I manage them?"

"The first thing to do is to get the sections off

the hives and sort them over to see how many are completed, nearly completed, etc. The number of grades we are to make depends upon the use we make of the unfinished ones. After sorting out all that are completed I usually put the rest into three classes. The first class are those which have very little if any honey in the cells. If any have from ten to fifty cells of unsealed honey, they are allowed to go in this class, but no sealed honey is allowed with this lot. In the second are those that are less than two-thirds finished. In the third class go all that are above this."

"And now what do you do with each class?"

"The sections in the first class are carefully stored away in supers, ready to be put on the hives at the very opening of the next honey-flow, if they are not needed for baits."

"Do you mean that you put on a whole super of these at the beginning of the flow?"

"Yes, if I have them so I can; for with such sections the swarming fever is almost always done away with, because the bees enter them before any honey is crowded into the brood-chamber; and by giving more supers, as we have just been talking about, such colonies will, more often than otherwise, pass through the season without swarming at all, giving a large yield of honey every time. The second class is set away to have the honey extracted from them at the first opportunity, after which the bees are allowed to clean them up, when they are used for baits in preparing the supers for the next season; or they are reserved for feeding any colonies which may need it the next spring. After the bees have taken the honey from them, they are used as bait sections. I prefer to use enough to make two rows through the super, if I can have that many. By putting these rows of baits so there is only one row of sections on either outside of them it is no trick to get a super completed all at once, as the bees always do more work in the center of the super, where left to themselves, than they do at the outsides. But by thus placing the baits they begin at or near each side first, and thus the sides are completed as quickly as the center, and all come off completed equally. If I am short of baits the sections in the third class are treated the same as those in the second; otherwise I sell them either at home or ship them to New York. A few years ago I did not think this latter could be done; but I tried a few cases one year, when I had more than was needed, and the returns gave me within 2½ cents as much as for my fancy honey. Since then I have remembered it, and I find that my first experience with shipping is the rule, and that it is more profitable to ship all two-thirds-sealed sections, having the remaining third filled with unsealed honey, than to dispose of them in any other way unless I am short of baits. If short, I sometimes think it would pay to extract or feed fully completed sections for the baits they would make."

Borodino, N. Y.

A California paper states the Imperial Valley Bee-keepers' Association have practical control of the honey output of the valley, and are securing good prices on the cars shipped East. There are now 7000 stands of bees in the county.

GENERAL CORRESPONDENCE

SWARMING.

Some Facts to Prove that the Scouts Usually Search for a Home Before the Issuing of the Swarm.

BY J. E. HAND.

Mr. Greiner's article, p. 1507, last year, revives an interesting subject that was discussed pro and con in the bee-journals a number of years ago, and calls vividly to my mind some experiments that I conducted some 20 years ago in Iowa, with a view to finding out the truth about the scout theory.

A prairie country where the timber grows in belts along the streams, and where trees suitable to lodge a swarm are scarce, offers superior advantages for studying the habits and instincts of bees relative to their choosing a home before and after the issuing of a swarm.

I lived on the banks of the Iowa River, in Hardin Co., Iowa, and in conducting these experiments I loaded a flat boat with empty hives at swarming time and scattered them along the banks of the river, usually in some tree, and some eight or ten feet from the ground. I visited these hives every day, and have had swarms enter such hives the same day they were put up; and, again, I have known the scouts to take up their abode in a hive every day for nearly a week before the swarm took possession.

Again, I have known of more than one instance of a swarm issuing from the parent hive and making off to one of those decoy hives without clustering. Like Mr. Greiner I have had strange bees come into my apiary, and take possession of an empty hive in which the scouts have been working for several days. All my experience along this line goes to prove that bees usually search for a home for several days before the issuing of a swarm. However, they are not always successful in locating a suitable abode, in which case the swarm will fly in a straight line for some distance and then cluster again and repeat the operation of searching for a home, and doubtless this was the case with the swarms that entered Mr. Greiner's hives. Undoubtedly those swarms came from a distance, and clustered not far from Mr. Greiner's apiary.

I believe bees search for a home in very much the same way that they search for stores of pollen and nectar, and that more than one swarm often choose the same hive is evident from the fighting of the guards at the entrance of these hives. After a swarm once chooses a decoy hive for their future home it is as faithfully guarded until the swarm takes possession as it is afterward, and no intruder is allowed to enter.

Bees seem to prefer to seek a home at some distance from their present abode, and I have known swarms to leave the hive the next day after being hived, and go straight to a decoy hive 1½ miles away. The scout theory is an established fact, and offers an interesting theme for the student of bee nature.

Birmingham, Ohio.

A HIVE-LIFTING WHEELBARROW.

How it May be Used to Save Hard Work.

BY ANDREW C. BROVALD.

The illustrations show my hive-lifter and carrier on which I have applied for a patent. I have solved the problem of lifting and moving heavy supers and hives, to my own satisfaction at least. I can examine the brood-nest with two supers on about as fast as if it had only the cover over it.

The frame is 6 feet long, and the clamp that grips the hive is 25 in. long, and opens 20 in., so

no lifting to do you can take it out entirely), laying a couple of boards over the frame, one can pile on about three times as many empty supers as on a common wheelbarrow.

To illustrate further the convenience we will take the hive manipulations that Doolittle describes in "A Year's Work in an Out-apiary," where he puts the upper story down on the bottom-board and takes the old brood-nest away: that is an easy operation with this machine. I simply slip the lifter over the two-story hive as it stands, lift the whole to one side, then set the upper story back on the bottom-board. Thus it is done at one operation.

There are many bee-keepers with hundreds of colonies who put the second super on top when the first is partly filled with honey just because it is too much of a job to lift off all these heavy supers and put the empty ones next to the brood-nest. Now, I think the majority of bee-

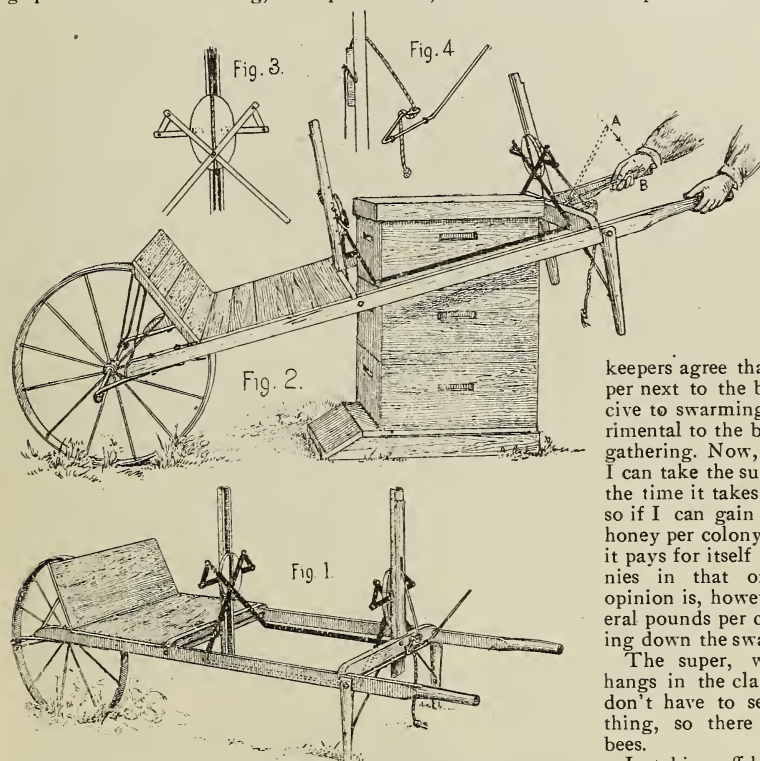
keepers agree that a nearly filled super next to the brood-nest is conducive to swarming, and that it is detrimental to the best results in honey-gathering. Now, by using this lifter I can take the super off in just about the time it takes to lift off the cover; so if I can gain only one pound of honey per colony by using the lifter it pays for itself for every 100 colonies in that one operation. My opinion is, however, that I gain several pounds per colony, besides keeping down the swarming impulse.

The super, while off the hive, hangs in the clamps of the lifter. I don't have to set it down on any thing, so there is no smashing of bees.

In taking off honey the lifter saves a lot of hard work. I leave the honey on the hives till the flow is about

over, and use bee-escapes. My bee-escape boards are used for super-covers, so when I put them under the supers they are left there, and I do not have to disturb the bees any more, and it is quite easy to put in the escape-boards with this lifter. When taking off supers there is more or less burr-comb on the under side of the bottom-bars. That used to bother me somewhat; for when I set the super down on a flat surface the burr-combs would spring the bottom-bar so as to smash the lower edge of the combs. With this lifter there is no bother whatever on that account. The supers hang in the clamps, and I wheel them to the extractor.

Babcock, Wis.



BROVALD'S HIVE-LIFTING WHEELBARROW.

it will grip any box from 12 to 19 inches in width. The two standards that are bolted to the cross-pieces in the frame are 2 feet long, and have grooves in them in which the lifting attachment is held. These standards are for the purpose of adjusting the lifting attachment to the height of the hive. For instance, to take a ten-frame double-walled hive standing on the ground, the lifting attachment has to be let down to the last notch; and for taking off supers it has to be lifted up. There is a place in front of the lifting attachment about 17×20 inches, where a comb-bucket and tools can be carried, or supers that are ready for putting on the hives.

Besides having the lifting attachment it is more convenient in the apiary than a common wheelbarrow, because, by dropping the lifting attachment down out of the way, and (if you have

Imperial Valley, Cal., will ship 20 carloads of honey this year. Last year it had but 7.

BEE-KEEPING IN AUSTRALIA.

An Interview with the President of the Victoria Apicultural Association.

[Our readers will remember that Mr. F. R. Buehne, of Tooborac, Victoria, Australia, came to the United States in May to introduce his new cap-melting device—a machine that he claims not only melts the cappings as fast as they leave the uncapping-knife, but delivers the melted wax and honey in two separate receptacles before they actually cool. On this trip he called on the publishers of this journal, and during the course of our conversation with him we found him to be an exceptionally well-posted bee-keeper. When it comes to practical stunts in the handling of bees he probably has few if any superiors. As an indication of how well he is regarded in Australia we will say that he is President of the Victoria Apicultural Association, and Bee Expert of the Department of Agriculture for his State. While here showing his machine and explaining its merits it occurred to us that it would be very interesting as well as profitable to put him on the witness-stand and make him answer questions. We accordingly arranged for an interview, with a stenographer present. In that which follows we believe that our readers will acknowledge with us that he is a Gamaliel at whose feet we may profitably sit and listen, for he has had a varied and ripe experience that will be worth something, even to us Yankees who are supposed to beat the world in the production of honey. We are glad, therefore, to introduce Mr. Buehne, and will now ply him with questions to answer.—ED.]

BEE PARALYSIS.

"How do the climatic conditions of Tooborac, Victoria, differ from those in Germany, Mr. Buehne?"

"Those in Germany are much the same as in the Eastern States of this country. My present locality is similar to that of Southern California. It is similar to California in climate if not in flora."

"What race or strain of bees do you find gives the best results?"

"The darker strains of Italians."

"Why do you prefer them?"

"Because of their greater immunity from bee paralysis."

"Do you find the yellow Italians as free from that disease as the darker strains?"

"No, decidedly not."

"Do you find that your strains of Italians resist foul brood better than black bees?"

"I do. On one occasion five cases of foul brood occurred in an apiary of 250 colonies, and four out of those five were in colonies of black bees, of which there were only five in the whole apiary."

"Do you find that bee paralysis is more prevalent in some parts of Australia than others?"

"Yes, that is generally acknowledged by our bee-keepers."

"What constitutes the difference in these localities?"

"The dry inland districts are favorable to the development of paralysis, while in the cooler coast regions it is almost unknown."

"Did you ever attempt to introduce any other strain in your locality to improve your bees?"

"Yes. On many occasions I found that, with new blood, came a predisposition to bee paralysis. On one occasion I bred over ninety queens from two specially yellow breeders, and introduced them with the view of improving my own strain. The result was that both breeders, with all their bees, succumbed to paralysis the following spring, and every one of the colonies of their queen progeny was more or less affected—so much so that I requeened the whole of them as fast as

I could from queens of my own original strain, keeping them going with brood of the same in the meantime. I thus lost the entire season in keeping up my colonies."

"How much did that loss amount to?"

"At least \$500."

"In a general way, do you find the extra-yellow strains as hardy as your ordinary regular leather-colored stock?"

"No. They are much more influenced by changes of temperature, being easily chilled in cold weather."

"Are the yellow strains used very much in localities on the coast?"

"No. The yellow bees are kept principally by beginners."

"What cure, if any, have you for bee paralysis?"

"The only cure I know of is to requeen with a different strain. A temporary cure may be effected by feeding honey without any drugs."

"Why do you say without any drugs?"

"I have on several occasions eliminated the disease for the time being by feeding thin honey continuously for several months."

"Why do you feed *honey* rather than sugar syrup?"

"Because I am of the opinion that the digestive organs, being affected by paralysis, sugar which would have to be inverted would tax the digestion more than honey that is already inverted, or partially digested."

"Do you find that some individual colonies are immune to the disease, even when surrounded by other infected colonies?"

"Yes, I do; and it is such that I choose to breed from, with the view of creating a strain of bees immune to paralysis."

"Can you put combs from colonies affected with bee paralysis into healthy ones without carrying the disease?"

"Yes; in fact, it is a practice with me to put combs purposely from the infected colonies into such colonies as I esteem are immune, for the purpose of testing their assumed immunity."

"Will combs from such affected colonies carry the disease to colonies that are not hardy or immune?"

"I do not think so."

"What does carry disease from colony to colony?"

"Assuming paralysis to be a germ disease, once a locality has been infected, germs would be present everywhere, but would cause an outbreak only among bees possessing a predisposed constitutional weakness."

"If you were starting anew, would you begin with stock from a locality where bee paralysis was unknown?"

"No. I should prefer stock from an apiary from which it has been bred out by selection, as I have explained."

"Can you recall instances bearing on this point?"

"Yes. Fifty colonies which were sent to me from an apiary quite free from paralysis developed this disease in a most virulent form within a few days after being placed in my apiary, my own colonies showing no sign of paralysis, even when the new arrivals had become almost extinct."

To be continued.



E. D. TOWNSEND'S PINE LAKE YARD IN MECOSTA COUNTY, MICHIGAN.

THE LOCATION OF EXTRACTING YARDS.

The Advantage of a Protected Apiary; How to get the Honey to the Extracting-house with the Least Effort.

BY E. D. TOWNSEND.

If the bees find as much genuine pleasure in working in a yard where there is good outside protection from prevailing winds as the operator does, then there can be no doubt that this outside protection is a good thing. My boys are always glad when we have finished extracting at one of our yards where there is but little protection; and they look forward gladly to the work at our Pine Lake yard where there is protection from the wind. In our bee-keeping experience I suppose we have had yards in at least 25 different places, and in all kinds of locations—some well protected, and others not protected at all from the prevailing winds; therefore we think we have learned the value of protection, from actual experience.

No two of our yards are arranged on the same plan, for the hives are so located as to take advantage of the particular lay of the ground. As far as possible we locate our extracting-houses in the lowest part of the yard to facilitate the wheeling-in of the honey. Wheelbarrow paths are

chosen, leading from different parts to the house. At our Pine Lake yard, however, as shown in the engraving, we were obliged to place two of the rows of hives on the ground that was lower than the door of the honey-house. The main path for these two rows is at the upper side of both rows, where the ground is on a level with the honey-house door. In this way, by loading the wheelbarrow at the back of the upper row it is not necessary to run up hill after reaching the path. When the load is taken from the lower row the wheelbarrow is placed so as to be pushed directly up the short hill into the path. We have found that it is easier to push a load up a short steep hill than to push it all the way to the honey-house up a hill that is very much longer, although not nearly so steep.

On level ground it is not difficult to arrange the yard so that it will be convenient to wheel in the honey from all parts; but where the ground is uneven, a little planning must be done in order to make the work easier. If the ground is very uneven it is not best to try to keep the hives in rows, but to group them to some extent; for the first thing to do is to secure good wheelbarrow paths, of which there should be three or four leading to the honey-house. These paths need not necessarily be straight, for it is many times much easier to travel a little further in order to avoid a grade.

Having these main paths selected, the yard will



TOWNSEND'S YARD IN KALKASKA COUNTY, MICHIGAN.

thus be divided into three or four groups of hives. I prefer to have the hives placed facing the south or southeast. But in the majority of our yards we can pay but little attention to the direction, and the hives, therefore, face every way except the north. We see no difference in results, and it is possible that the colonies would do as well if the entrances were toward the north; but we always avoid that direction, perhaps from the force of habit.

Parallel with the lay of the ground we level pieces of ground 20 inches wide and 4 feet long, which is large enough for two hives placed side by side. Two 2×4's 4 feet long are laid down flat, and leveled. In this way the foundation is made for two hives. The front of the hives should preferably be $\frac{1}{4}$ inch lower than the back so that water will run out of the entrance. We formerly laid great stress on having our hives in rows all facing the south; but we find that this plan, in the majority of instances, was not satisfactory, on account of the lay of the ground. Furthermore a greater percentage of young queens were lost on returning from their mating-flight, and the bees themselves mixed up much more. Now the groups may be placed five or six feet apart one way and ten or twelve the other. On this plan the groups are really in rows which are not straight, perhaps, but irregular, to conform to the ground. Possibly some might think that this arrangement would not be pleasing to the eye; but there is really hardly any other plan that would look well on rough ground. The wheelbarrow may be run between each group of hives and also between each row; and it is an easy mat-

ter to load the honey very close to one of the main paths leading to the extracting-house.

In renting ground for bee-yards it is not always possible to secure a desirable place to set the hives. Our Kalkaska yard, as shown in the second engraving, is located on a side hill. However, we first made four terraces on which the rows of hives might be placed. Since the hill slopes to the southeast, the hives face in all directions between south and east. The honey-houses were set about midway at the lower side. A path was made across the terraces in the middle, dividing the yard in two parts. When extracting we work from the sides of the yard toward the center in order to shorten the distance to the honey-house. If we set this house at one side of the yard it would be necessary to wheel the honey, or at least the greater part of it, twice as far.

Remus, Mich.

MOTH AND LARVÆ DESTRUCTIVE TO BASSWOODS AND OTHER SHADE-TREES.

BY PROF. H. A. SURFACE.

[Chancing to go down through some streets in the residence districts of East Cleveland a few weeks ago we observed that many of the trunks of the trees had sticky fly-paper tied around them. On looking above at the foliage we noticed that the leaves, especially of the basswoods, were being eaten, and in some cases the trees were entirely defoliated. Having heard of the fearful ravages of the gipsy moth in Massachusetts, and hearing something to the effect that they might visit Cleveland at almost any time, we wondered as we walked down the streets whether the pests had not already reached our city. We observed that many of the trunks of the trees had cocoon masses much like those illustrated

of the gipsy moth. On examining carefully the trunks of the trees we noticed a great many worms, very strikingly beautiful yet ugly enough to make one feel "creepy." At the extreme end, or tail, was a tuft of straight brown bristles standing up at an angle of 45 degrees. Just back of the head were four little tufts or plumes of a very pale yellow. The upper half of the larva was somewhat larger in diameter than the lower. In a word, it was very showy, and appeared to be a voracious eater of the leaves. The lindens appeared to be the greatest sufferers, and then came the poplars and maples.

We asked some of the residents what the pest was; but nobody seemed to know very much about it except one man, who ventured that it was the California scab. Of course, we knew that could not be correct.

Fearing that the pest might be the gipsy moth—or at any rate knowing that it was something very destructive, and that possibly others might be suffering from it, we addressed a letter to Professor H. A. Surface, describing minutely the larva, and supplying a rough sketch. The letter below is interesting, and it may help others, who may have large numbers of basswood or maple trees, to cope with the ravages of the pest, for it is getting to be a very serious one in Cleveland.

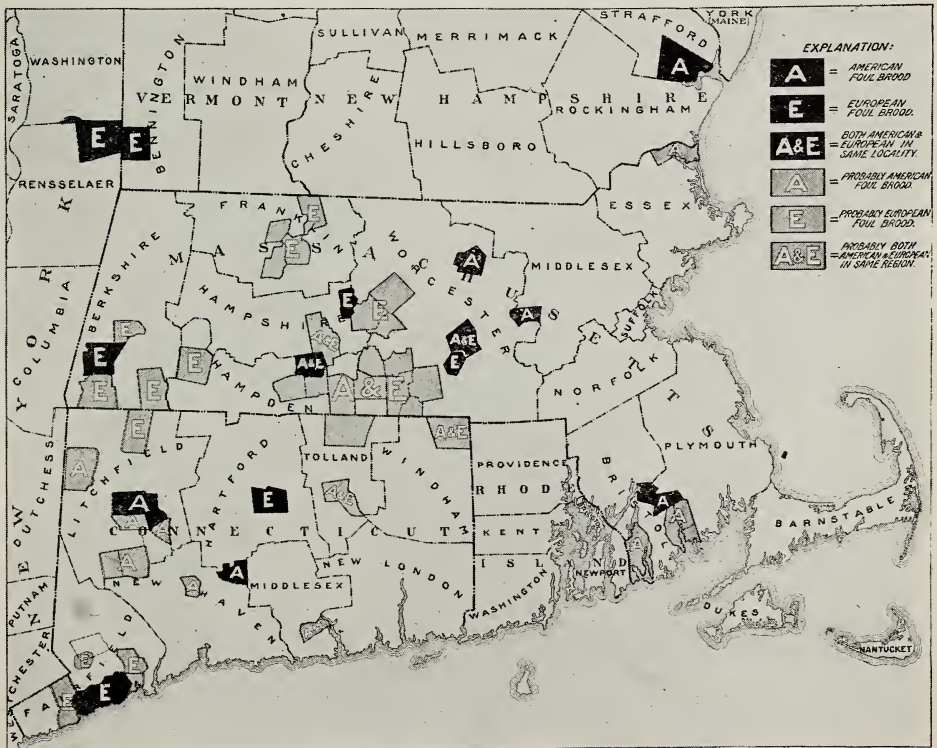
On arriving home we observed that the same insect had begun work on a vine at a neighbor's house. He destroyed the whole vine, root and branch, in a bonfire. We then found that the cocoons were being built on the under edge of the clapboards of the house. These were carefully hunted out and destroyed. As Rootville is blessed with beautiful lindens, or basswoods, we did not care, of course, to have the pests started on them.

Prof. Surface's letter only emphasizes the importance of preserving our feathered friends. Small boys every now and then consider it fine sport, with an air-rifle or flobert, to pick off these birds one by one. These boys should be immediately informed that it is against the law.—ED.]

Mr. E. R. Root:—I was pleased to receive your recent letter so accurately describing the larvæ destructive to the shade-trees on the streets of the

city of Cleveland. There is no doubt whatever concerning the correct name of the pest, as your description and illustration of the pest are accurate. This is the white-marked tussock moth, scientific name *Hemerocampa leucostigma*. I have never heard it called California scab, and think this is a very poor name for an insect which is so free-moving as is the larva of a moth. This larva transforms into a moth, the male of which has an expanse of wings of one-eighth inch, while the wings of the female are very small vestiges, and are so inconspicuous as to escape observation by many persons, and consequently she does not look like a moth, wings being absent. It is a very destructive pest, especially on the shade-trees of cities, as it feeds upon a great many kinds of trees, and is too often allowed to go unchecked until it has destroyed the foliage of the tree and become a general nuisance by its abundance. However, it has many enemies, both in the insect world and among birds. It has many internal parasites which help in holding it in check; and certain birds, such as cuckoos, feed upon it readily. The tussock-moth larva feeds upon the foliage of maple, horsechestnut, and other shade-trees, and becomes easily the most serious pest of these trees on some village or city streets. The life history is interesting, and is as follows:

The larvæ feed until they reach a length of



MAP SHOWING DISTRIBUTION OF BEE DISEASES IN MASSACHUSETTS, AND POSSIBLE SOURCES OF INFECTION FROM NEIGHBORING STATES.

Re-engraved from Bulletin No. 75, Part III., by Burton N. Gates, Bureau of Entomology, Washington, D. C. See editorial in last issue, page 869.

over an inch, when they seek a place to form a loose cocoon of silk holding together the hairs which they cast from their bodies. Within this loose silken and spiny cocoon, which, as you say, is often found on the sides of the trees, may transform into a chrysalis, and there remain, either during the entire winter or during a few days in midsummer, as there are two broods per year. After they emerge from the chrysalis the males fly; but the females remain clinging to the old cocoons, where they lay masses of eggs covered with a white frothy substance, which hardens and partially protects them. When these egg masses hatch, the little caterpillars which hatch out crawl to the green foliage of the trees and first eat very small holes in the leaves, but later devour practically the entire leaf, almost stripping the trees and causing considerable damage.

As they are leaf-eaters, or feed by chewing their food, they can be killed by arsenical sprays with certainty. For this purpose where a spray-pump is available it is possible to use one-half pound of Paris green in fifty gallons of water, or three pounds of arsenate of lead in the same amount of water. However, it is not easy to spray large shade-trees, and it is more desirable to destroy the pests while in the cocoon or egg state by touching them with sponges fastened on the ends of long poles and dipped into oil. Common kerosene or coal oil will do for this, but it would be well to have it blackened by the addition of tar or some other pigment in order that the cocoons that have been touched may be stained, so that the operator can see at once which he has treated, and work more rapidly without having to repeat his work as he goes around the trees. In order to preserve the parasites it is a good plan to gather the cocoons and egg masses by hand, by using short ladders or step-ladders, and placing them in boxes with wire screens over them. The parasites can come out and be free to escape through the coarse meshes of wire, while if the larvæ would hatch in such a place they would not find the leaves, and perish.

Harrisburg, Pa.

THE LEGS OF THE HONEY-BEE.

BY DR. BRUENNICH.

Every schoolboy ought to know that the bee has three pairs of legs; but not every bee-keeper knows that every leg is a wonderful mechanism and has an apparatus of its own. Let us look at the details of these wonderful parts of our little insect. Every leg consists uniformly of 9 parts and 8 joints. The first is the haunch, or coxa; the second, the trochanter; then come the femur, the tibia, and the foot. The latter is composed of 5 parts, of which the first is the longest. With the exception of the tibia-palmar joint, which al-

lows movements of the palmar in more than one plane, all the joints are constructed like hinges; that is, when one part is fixed, the movement of the other is always in a plane. If the axes of all 8 joints were parallel, the movements of the legs would be very much restrained; but this is not

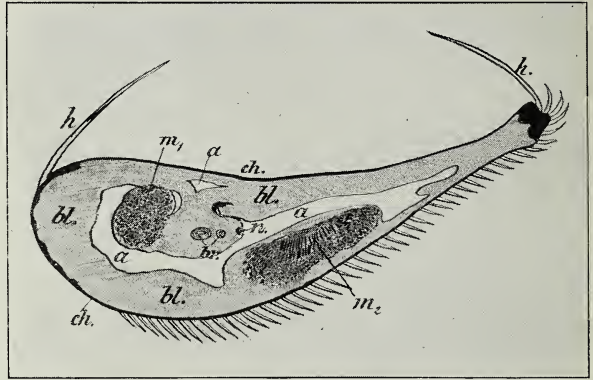


FIG. 1.—SECTION THROUGH THE BASKET OF THE TIBIA OF THE THIRD OR HIND LEG.

the case, for the axes lie in different directions, which allows the most complicated movements of the leg. It is this construction which has been imitated by engineers, and it can be seen in many branches of mechanics.

The most important joint in any of the legs is the tibia palmar, which shows in each leg a wonderful apparatus of its own. This joint allows movement in more than one plane.

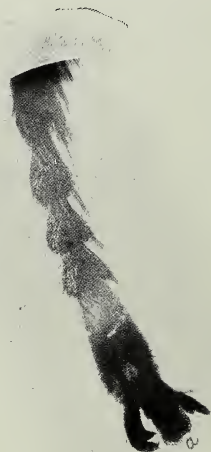


FIG. 2.—FOOT OF THE BEE.

At the end are shown the two claws, and between them, at *a*, the pulvilli.

In the case of insects the skeleton is not *interior*, but quite *exterior*, and consists of the chitinous membrane, or skin, which serves to hold

the members together. Chitin is an admirable material of an exceedingly firm but elastic nature. A description of the leg gives us an idea of the construction of the whole bee. Let us look, therefore, at the reproduction of a section through the little basket of the hind legs, which serves as a receptacle for the gathered pollen, Fig. 1. In this illustration *ch* is the chitinous membrane. At both ends we find the hairs, *h*, which serve to hold the little loaf of pollen. In the interior we are surprised to see, taking up considerable space, the two muscles, *m, m*—the first the extensor, the second the flexor, of the foot; *a* is the great air-space from which are discharged the little bronchial tubes, of which we see two in the section *br*. This air-space is separated from the other parts by a very fine membrane



FIG. 3.—FIRST LEG.

e. ti. extensor of the tibia; *F.* femur; *Tr.* trochanter; *e. ta.* extensor of the tarsus; *f. ta.* flexor of the tarsus; *Ti.* tibia; *c.* cleaning-apparatus *Ta.* tarsus; *P.* pulvillus.

which serves for the exchange of gases—namely, oxygen and carbonic acid. The oxygen is brought by the bronchus from the outer air and penetrates the membrane to go into the great blood-space *bl* which surrounds all inner organs and gives them food for their labor. Inversely goes the carbonic acid, which is a product of combustion from the blood into the air-space, or from there into the free atmosphere.

At *n* we see a section of the nerve, which, dividing itself into different branches, gives the impulse of movement to the muscles, and transmits the sensations to the brain or spinal marrow.

The legs are covered with hairs of different size. The hairs of the coxa and trochanter are pinnate. All the legs have on the end of the foot an apparatus for fixing or clinging. There are two claws, each composed of two hooks, with which the bee is enabled to get hold on different objects. Between the claws there is the pulvillus (shown at *a*, Fig. 2), a little bolster secreting a viscous sap. By the aid of the pulvillus the bee can climb a polished surface like a pane of glass.

Let us now look at the most interesting and complicated part of the leg—the

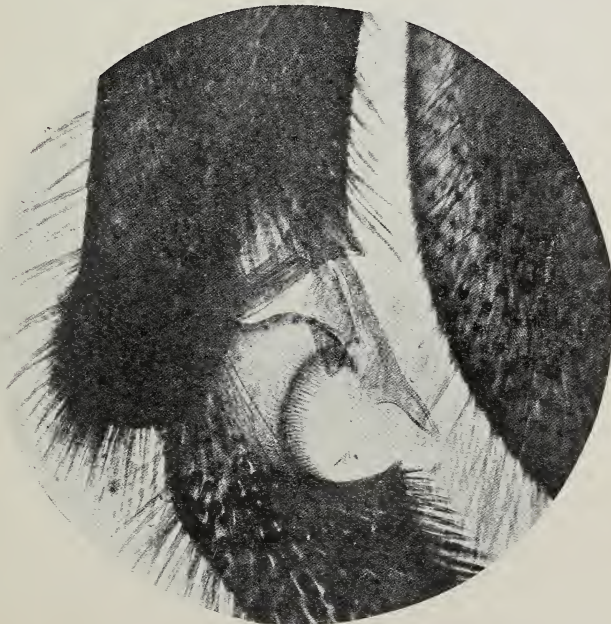


FIG. 4.—LARGER VIEW OF THE TIBIA-PALMAR JOINT ON THE FIRST LEG, SHOWING THE CLEANING-APPARATUS.



FIG. 6.—THIRD (OR HIND) LEG.

tibia-palmar joints. On the first leg it is a wonderful apparatus for cleaning the antennæ and the tongue—Figs. 3 and 4. In the upper part of the palmar there is a semicircular groove fringed with solid parallel bristle. In the end of the tibia there is a little movable operculum which shuts the groove when the palmar is bent toward the tibia. When the bee wishes to clean the antennæ (which it always does before flying up as every bee-keeper has observed, it lets them down a little, puts the first leg over the antenna so that

the latter is placed in the groove; then it bends the palmar so that the operculum shuts the groove and grips the antenna. Then it draws back both antennæ so that they are polished, and all dirt remains on that little half-round comb. The bee does the same with the tongue.

The tibia-palmar joint of the middle leg, Fig. 5, is the simplest. There we find only a little spur which is said to strip off the little loaf of pollen. The same joint of the hind leg is rather complicated, Figs. 6 and 7. It forms a kind of

The basket is not smooth, as with the worker-bee, but covered with fine hairs. Ottenbach, Switzerland.

THE ALEXANDER PLAN FOR MAKING INCREASE.

Allowing Colonies to Rear Their Own Queens.

I have been very much interested in reading Mr. Alexander's plan for making increase, and would like to ask him a few questions about it.

How would it do to select a frame or two of capped brood having also some eggs and young larvæ around the bottom and sides, and put it above an excluder with a flight-hole; then when the young queen's eggs begin to hatch, remove the old hive and set the young queen down, when the colony would be ready for extracting or increase, or set the young queen and brood in the lower or old hive, which has now two queens, and therefore is not likely to swarm.

By shaking the young queens in front of the lower hive as soon as they commence to lay we can be sure to have young queens always, without having to look up the old one. They will surely be as good as superseded ones. Some of our best bee-keepers advise letting colonies do their own requeening. I should like to have Mr. Alexander's opinion of these things, and I think there are many others who would also.

Salem, N. J.

HENRY BASSETT.

[The above was referred to Mr. E. W. Alexander, whose reply follows.—ED.]

Friend Bassett does not say, but I suppose he intends to give a ripe queen-cell or virgin for the bees to mature a queen from. Now, this looks all right, and it would be, providing the bees from below would tolerate a virgin so near their laying queen. With us, when we have tried this way of maturing young queens, at least 90 per cent were balled and killed when about two or three days old.

This is one thing I never could accomplish—that is, keep a virgin alive when bees with a laying queen had free access to each queen.

I know some recommend superseding queens by simply letting a virgin run into the hive at the entrance. We have tried this hundreds of times when we had a surplus of virgins, and never, but once, was the virgin allowed to kill the laying queen. If I had a breeding queen worth fifty dollars in a good full colony I would not be afraid to have a pint of virgin queens shaken down at the entrance, for I am sure each virgin would be grabbed and stung by the workers before she could ever meet the laying



FIG. 5.—THE MIDDLE (OR SECOND) LEG.
The spur is shown at *a*.

pincers with which the bee can grasp minute objects—for instance, the wax pellets on the abdomen. On the end of the tibia there is a little comb consisting of about 18 bristles, the purpose of which is still unknown. On the palma of the hind leg we find on the worker-bee the "brush," consisting of nine or ten series of bristles. With this brush the bee gathers the pollen that adheres to the body, or with it cleans the body from dust, etc. Thus we see that the legs of the honey-bee serve not only as organs of locomotion but for cleaning, carrying, etc.

With the drone and the queen the first and second pairs of legs do not differ materially from those of the worker. On the hind leg the brush of the queen and drone consists of finer and quite irregular bristles, and there is no comb at all.

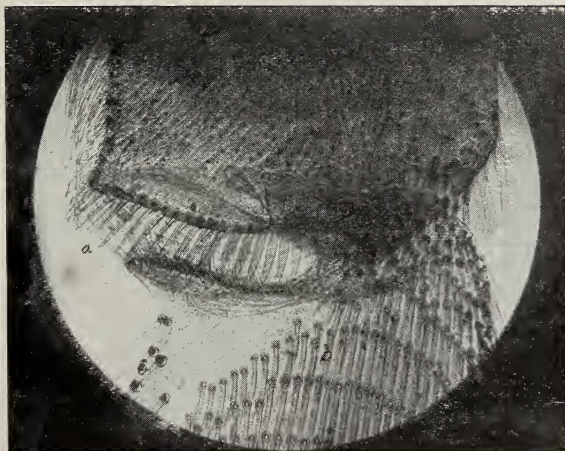


FIG. 7.—TIBIA-PALMAR JOINT OF THE THIRD (OR HIND) LEG.
a, comb; *b*, brush.



DRONE, QUEEN, AND WORKER; PHOTOGRAPHED BY DR. K. BRUENNICH.

queen. As to allowing the bees to do their own superseding, I am decidedly opposed to it. We never can improve them as we should while this miserable method is practiced. There is not a particle of science about it.

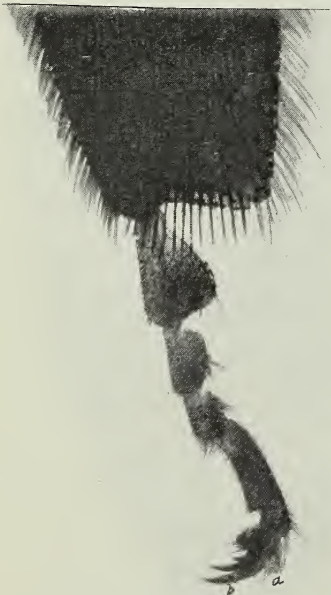


FIG. 8.—FOOT OF THE THIRD (OR HIND) LEG.
b, claws; a, pulvillus.

When a colony has two laying queens, and they are separated only by a queen-excluder, and you wish to have both queens occupy the lower hive only, remove the upper hive and also the excluder as carefully as you can, setting them to one side; then remove two or three combs with the adhering bees from one side of the lower hive, being careful not to disturb their queen; then take as many combs from the upper hive with their brood, queen, and adhering bees, setting them carefully in the open part of the lower hive. Replace the excluder and upper hive, doing it all without exciting the bees any more than can be helped. In this way each queen will be for some time with her bees and brood; and when the queens do come together, all will be quiet and natural; whereas if you shake them down in front of the hive, the bees and queen will be much excited, and she will run all through the hive, and you will be quite likely to have one or both queens stung. No, don't shake a queen down in front of any hive if you can prevent it. I have several times seen good queens stung by their own bees when this was practiced. It is quite a trade of itself to know how to handle hundreds of queens and not lose any; for so much depends upon certain conditions that a method that will work all right in one case may be away off in another.

Delanson, N. Y.

PURE FOOD IN NEW YORK.

Commissioner Pearson, of New York, has notified all the makers of ice cream in his State that adulteration will not be tolerated. Pure cream must be used. He could very properly drop a hint of the same kind with respect to honey a little later in the season.

W. K. M.

SIMPLIFIED QUEEN-REARING.

A Plan Adapted to the Needs of the Small Bee-keeper.

BY C. O. FLUHARTY.

I have frequently been interrogated on the subject of queen-rearing by bee-keepers owning perhaps half a dozen hives and desiring to increase the number of their colonies without having them swarm.

In most cases I find that persons keeping bees on a small scale do not care to undertake queen-rearing by the seemingly complicated and tedious methods employed by professional queen-breeders; therefore after trying a number of plans for simplifying this, so as to make it quite easy for even a beginner to understand and execute, I have concluded that the following will be found the most satisfactory method, having thoroughly tested it this season.

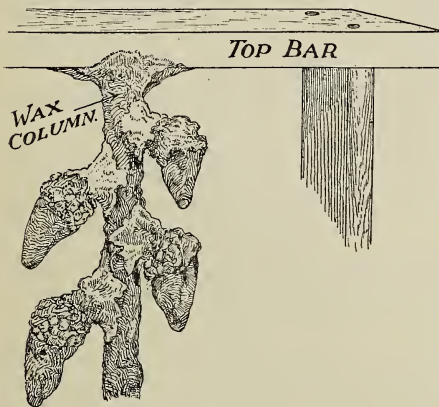


FIG. 1.

First, as to apparatus: A frame of the standard dimensions, with the exception that the bars and ends be constructed of one width of material, say one inch. To one side of this frame, firmly fasten with tacks a sheet of wire cloth, tacking it down all around so as to make it "bee-proof;" next prepare another wire cloth in like manner for the other side, but do not tack it on, as it is to be held in place by lumps of beeswax at each corner and at intervals between the corners. Thus we have constructed a huge nursery cage with

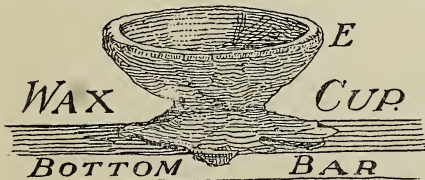


FIG. 2.

one side stationary and the other held in place by the wax. Next, fasten a small column of beeswax inside the frame, one end of which attach to the under side of the top-bar while the other end is made fast to the bottom-bar. Fix the ends

firmly to the bars by pressing the wax with the thumbs. The cells are to be attached to this little wax column. See Fig. 1.

Next, mold with a blunt stick or leadpencil eraser some tiny wax cups as seen in Fig. 2, and fasten to the bottom-bar as indicated in No. 2, Fig. 3. These are food-cups. Now roll a piece



FIG. 3.

of wax quite thin, and convert it into a number of little cones, as B and D, Fig. 4. These are to hold the queen-cells as well as to suspend them from the wax column. See Figs. 1 and 3. We now have all the necessary apparatus with the exception of a *very* sharp and narrow-bladed knife for removing cells from frames.

To proceed, first remove the queen from a "boiling-over" hive that you wish to breed from (always select your best stock for this), and place the queen with two frames of her own bees in a new hive, and set it some distance from the old hive. This will, of course, give you a new hive.

The work is now over for about six days, after which, on opening the queenless hive, you will in most cases find from one to twenty queen-cells, large and well drawn out. Now carefully brush the bees from the frame containing the most cells, and, with the knife, cut out all of the finished ones; that is, those that are entirely closed. Next, without shaking the cells, remove as much of the adhering worker-cells as you safely can without breaking the walls of the queen-cell;

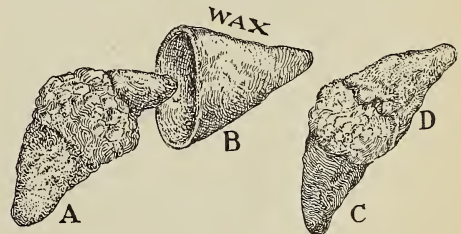


FIG. 4.

then insert the cell in the cone which was prepared for it; after this, cement the rim of the cone down tight to the cell with the point of the knife. Now fasten the end of the cone to the wax column, leaving the cell suspended in the same fashion that the bees build them. After preparing as many cells in this way as you will require queens, place the frame back in the queenless hive and leave one side of wire cloth off. After the frame has been in the hive 24 hours the bees will have cemented over every chink quite nicely, they being much better architects than we are.

It is now time to fill the food-cups with honey, and, after making sure that no bees are among the cells, wax the other wire cloth in place; you may

now replace the frame in the hive and await the appearance of your queens.

Now a few words as to the disposition of the queens when they hatch. Divide your bees up by any method you care to follow. The plan which I generally adopt is to remove three frames containing brood and bees, and place them in an empty hive; then carry the old hive to a new site at least 15 feet from where the parent hive was originally located, placing the queenless three-frame colony in exactly the same position formerly occupied by the old hive. Of course, all the flight bees will return to the new hive, which will, by the time a queen is hatched, have become a fine colony well on with the fourth frame of comb. Now watch your cell-cage; and just as fast as you find queens hatched, remove them and drop them (without smoke) right among the bees in the queenless hive. There is hardly a chance of the bees balling if the queens are introduced before they can fly. I have given this a most thorough trial this season, and lost but one cell, it being torn down by a virgin that was left imprisoned for two days on account of my not having a hive ready for her.

Sandusky, W. Va.

[We endorse what our correspondent has to say in reference to queen-rearing on a small scale; that is, it is a mistake for a bee-keeper owning perhaps ten or fifteen colonies to think that he must have a complicated apparatus for rearing his queens. But it seems to us that the plan here described could be still further simplified, and improved at the same time. It requires rather close watching to remove virgins just as soon as they are hatched, and we can not see why it would not be vastly better, instead of placing cells in the cage in the manner described, simply to leave them where they were first constructed until they are ripe, and then distribute them among the nuclei already prepared. This would save all the expense of the cage, of the wax columns, wax cones, etc.; and since it is much safer in the long run to introduce ripe cells than virgins, there would be some saving. In most cases it would be necessary to protect the cells in the usual manner with regular queen-cell protectors, which also provide means for attaching them to the combs.—Ed.]

THE CASE METHOD OF REQUEENING EXPLAINED.

Good Queens Reared Under the Swarm-ing Impulse.

BY WM. W. CASE.

In reply to John M. Davis, page 700, I would say that I do not think I was understood concerning queens reared in swarming time. In the article quoted I was not writing a dissertation on queen-rearing; but a method of procedure to enable many who fail to get a honey crop from weak colonies or from excessive swarming to remedy those conditions and reap a nice profit.

In the first place I did not think any one would infer that I used cells for breeding sealed *after* the colony swarmed, I stating that such cells could be used for seven days, meaning, of course, that the last ones (sealed when the swarm issued)

would hatch by the eighth day, and intending to give the impression that all unsealed cells should be destroyed. Now, by preventing the queen from leaving the hive for two, three, or four days, by traps or otherwise, large numbers of prime sealed cells may be obtained (I have had as many as nine), sealed *before* the swarm has finally been hived. Such cells produce the best of queens possible to get, even though placed in nuclei or even mating-boxes if the temperature is kept right. As a matter of practice I do *not* divide the cell colony into nuclei until about the seventh day.

In defense of my queens, I might say that I went into winter quarters, fall of 1907, with 49 colonies. Two, through an oversight, starved to death; and three, for some cause or other, came out queenless, which, however, were early replaced from the South. On June 18, 1908, 45 of the 47 colonies were working in the supers, covering more than 1500 sections on that date. None were given brood from others excepting the three queenless ones above mentioned, which were slightly aided, one of them now working in the supers, and *none* had the aid of a second queen to reach that condition, but one swarm having issued previous to that date.

I am not rearing queens for sale, and have no ax to grind.

Frenchtown, N. J., June 22.

TWO SEASONS' EXPERIENCE WITH TWIN MATING-BOXES.

Some Data to Show the Economy of a Nucleus Holding Four Ounces of Bees.

BY M. T. PRITCHARD.

[The writer of the following article has charge of our north yard, where, with 200 double baby nuclei, he will rear, in practically three months, 2000 queens—has reared 1500 already. He does not seek alone mere numbers but quality of stock.—Ed.]

A system of record-keeping is used in one of the queen-rearing yards of The A. I. Root Co. which enables us to know at the end of the season just what has been done with each nucleus. Some data taken from these records may help us to decide between small nuclei and nuclei with full-sized frames. Five twin mating-boxes were taken from the storehouse, and an examination was made of the ten records, there being two nuclei in each box, each having two frames one-third the size of a Langstroth frame. They are probably a fair average of the yard.

These nuclei were all started between the 18th and the 27th of June, using four ounces of bees for each nucleus, and they were run until after the first of September. One, however, swarmed July 5, and was given a new supply of bees the same day. The last queens were taken from them Sept. 22. During the season's work with these ten nuclei, 47 virgin queens and 41 cells were introduced; 15 of the virgins were lost in introducing, 7 more were lost at mating time, and the remaining 25 became laying queens. Of the cells, 7 failed to hatch; 2 were lost at mating time, and 32 became laying queens.

After two seasons' experience with the twin mating-boxes I am satisfied that the little colonies will hold their own through the queen-rearing season if started with young bees. Our greatest

trouble has been to keep them from getting too strong and swarming out. I do not think any thing is gained by introducing virgins when the number killed and crippled in introducing is taken into consideration; and I believe that queens mated in these nuclei in favorable weather are fully equal to those mated by any other method.

At the close of the season the bees may be saved by moving the mating-boxes two or three miles from the yard and placing them in groups of 10 to 15 each. Allow the bees to fly from their new location for a few days, then place an empty hive in the center of each group, and in it hang all the nucleus frames that contain brood by putting them into regular L. frames. Brush the bees from the empty boxes in front of the hive, and move them away where the bees can not find them. The bees will unite in the regular-sized hive and make a colony that should winter as well as any if given a queen and plenty of feed; and it will be ready to divide into nuclei again the next spring.

Medina, Ohio.

A FURTHER DISCUSSION OF QUEEN-TRAPS.

The Clipped-queen Plan Preferable; Why Rear Drones? Not Necessary to Lose Swarms with Virgins.

BY A. J. HALTER.

On page 555, of the May 1st issue, Mr. Taylor replies to an article of mine regarding the use of queen-traps. My contentions were based wholly on outyard manipulation versus the clipped-queen system for swarm control.

I do not rear an abnormal amount of drones, and do not find it necessary to obtain chicken feed by catching them or starving them to death simply for a good riddance.

The main objection to the rearing of drones is the feed and space required for their development during the larval state. When developed, the short duration of life is optional with the worker-bees. I believe it is more profitable to requeen systematically from choice stock, thus obtaining a majority of young queens in the hives, which lay fewer drone eggs; then, by removing combs that contain too many drone-cells, when overhauling bees each spring the rearing of drones is kept normal.

Now in regard to the chilly nights and cool spells of rainy weather—was this not the cause of the shortage of honey last season?

June 17th we had a very heavy frost, freezing corn, tomatoes, etc., and on such occasions we certainly prefer to have the queens inside the hives.

Mr. Taylor says he finds clipped queens very annoying by hopping out of hives, and recommends traps for catching queens not clipped when a swarm emerges. I can not understand why a queen with one wing should be more difficult to catch than a queen with two wings when the trap is adjusted.

Several years ago what was called pickled brood appeared in two of my apiaries, mostly among hybrids and in colonies containing an old queen;

but as soon as pure young Italian queens were introduced the disease disappeared. This seemed worth its consideration, and I began to requeen, clipping and marking the ages of each.

I found that queens reared directly after the main flow, which closes about the middle of July, could be relied upon to pass through two succeeding honey seasons with very little danger of being superseded until the main flow was over at the end of the second season. During the latter part of July all queens two years old are destroyed, and a ripe cell is given; but this must be attended to promptly at the time stated; for when supers are removed and bees crowded into the lower story, old queens are more likely to be superseded; and when the first virgin queen hatches a swarm will often issue, in our location, sometimes as late as September, owing to a late flow of nectar. By requeening promptly we have a good force of young bees ready for this flow, which often gives quite a surplus. Those colonies which do not give a surplus generally have enough stores for winter—an item worth considering. The past season I operated about 150 colonies for comb honey, and about half this number of colonies for extracted honey and queen-rearing. During this time there was not a swarm with a virgin queen; nor were any swarms lost by flying away. All laying queens being clipped, the bees returned to the hives. By giving a proper hive-stand, queens will generally return. All told, there were not over ten queens missing during the whole period, including accidents in manipulations.

Were I to rely wholly on queen-traps it would be necessary to have them in use until the latter part of August in this locality; but by clipping queens and requeening, as stated, the swarming period is shortened, and thus I have the benefit of all the bees reared after the first of August, as well as those reared for the main flow.

Akron, Ohio.

J. T. Dunne, Fresno County bee inspector, reports that he inspected 35 apiaries last month. He finds the general condition of the apiaries north of Rolinda and west to the San Joaquin to be in fine condition. Many of the apiaries in this section have been extracted once and some the second time. The flow in this section is principally from the alfalfa. The 35 apiaries under inspection embraced 1910 hives or colonies.—*Pacific Rural Press*.

FOUL-BROOD LEGISLATION IN INDIANA.

Indiana bee-keepers are about to ask their legislature to pass a measure that will suppress both kinds of foul brood, and paralysis, in that State. About a year or more ago they did secure such a law; but owing to a defect the measure was invalid. They propose to try again. The new law proposes the appointment of a State Inspector of Apiaries acting under instructions from the State Entomologist. He is given power to aid in the development of the bee industry, and to afford protection to the bee-keepers by the suppression of bee diseases which now exist in several parts of the State. Indiana ought to have such a law, and have it quick. Mr. Pouder is its sponsor.

W. K. M.

HEADS OF GRAIN

FROM DIFFERENT FIELDS

A CAUTION IN REGARD TO GREASY WASTE.

In your comments on greasy waste as a smoker fuel, page 868, July 15, you say, "Two or three bushels of it will last one almost an entire season." There may be a number of persons who read this who will collect this greasy waste and leave it in a box, keg, or barrel; and if it happens to be collected from a shop where lard oil or any animal or vegetable oil, for that matter, is used, as in cutting threads, the waste would probably set fire to the building if it were not discovered in time, as it would catch fire from spontaneous combustion. This might not happen if the oil in the waste is of mineral origin, as that does not oxidize as readily as the other oils. Linseed and lard oil have quite an affinity for oxygen; but as almost all the lubricating oils are compounds I think you should warn your subscribers of the danger of leaving a pile of greasy waste in any wooden building. I have had a small pile of waste in a tin can get quite hot in ten hours in an engine-room, and the oil in the waste was supposed to be a strictly mineral oil, as it was used for lubrication.

Philadelphia, July 28. J. T. FENNEL.

[We have before mentioned the danger of allowing greasy waste to stand in a building, but we neglected to add this caution on the page referred to. Many fires owe their origin to the spontaneous combustion of greasy material left carelessly about. The best place to keep such smoker fuel is in a rain-proof box out of doors, away from any building.—ED.]

WHEN SWEET CLOVER YIELDS.

Is there a season of honey (nectar) flow for sweet clover, as for white clover and basswood, or is it a steady yielder all summer? If the latter, do the bees keep on putting the honey into the sections where there is an abundance of the bloom, or do they get simply their winter stores and living from it? I inquire because I have the right-of-way for a mile on both sides of my place sowed; and as it is now coming up nicely, by next year I expect to have the country covered; for, besides sowing it alongside the railroad track, I have had it scattered alongside the various roads leading out of town.

Buck Grove, Iowa. A. F. BONNEY.

[Sweet clover usually begins to yield nectar shortly after clover and basswood are out of bloom, beginning in our locality anywhere from the first to the middle of July. It continues then to yield nearly all summer. During that time it is freely visited by the bees. While the roadsides and railroad embankments have a large amount of it, it does not yield enough honey to make any showing in the supers, and sometimes not very much in the brood-nest.

In localities where there are only a few colonies and a large amount of bloom, it yields considerable surplus honey. In the vicinity of Chicago a large amount of sweet-clover and white-clover honey is secured. The quality is of the

very finest. If in your locality there are not a good many colonies you will be able to get some surplus, and also enough for winter stores.—ED.]

A GOOD PROTECTION FOR AN APIARY.

To protect the apiary from cold and hard north winds, make a fence from wire netting on the north side of your apiary, and plant some never-freezing honeysuckle plants close to it. In a short time these will grow and climb up the netting from one end to another so tight that no wind will get through, and so the apiary is saved from hard-blowing winds. These flowers will also make a nice appearance, especially when in bloom, as the blossoms are of different kinds, and there are green leaves the whole year. The plant will stand any cold.

By pulling down the wax cloth from one of my hives I saw that there were some holes gnawed in the tops of the frames by bee-moths. Please tell me whether this will do any harm to my bees. The holes are gnawed through the frames so that they can reach the honey. I have the black and hybrid races, but I always keep my colonies strong.

How high must I place my hives to keep frogs or toads from doing any harm to my bees?

New Ulm, Tex. WM. H. KAUTZ.

[If there are moths in the hives at all, it would pay you to Italianize your colonies, and thus be rid of them entirely. We should suppose that hives two feet from the ground would be safe from toads, etc.—ED.]

THE IMPORTANCE OF A SPACING-STAPLE AT THE LOWER END OF THE FRAME END-BARS.

I want to make a strong appeal to the readers of GLEANINGS to put end-spacing staples at the lower corners of frames to save bees from being slaughtered by the score. I am going to get out a petition and get 20 or 30 bee-keepers of New York State to sign it, to the effect that any manufacturer or bee-keeper who does not recommend putting staples, or something similar, on the lower end of the end-bar, to keep from killing bees, be subject to a fine for cruelty to insects, the honey-bees.

You can't take out a set of frames from a populous colony having no staple or other protection on the lower corners in three or five minutes without injuring or maiming 20 or 30 bees. If you raise one end of the frame $\frac{1}{4}$ inch higher than the other you crush or maim some bees and occasionally a queen.

Groton, N. Y.

W. L. COGSHALL.

[Any one can put staples on his frames if he prefers. Manufacturers are willing to furnish what bee-keepers demand.—ED.]

MATURE BEES DYING IN THE SPRING.

Complying with your request, page 703, June 1, I will give the experience I have had with bees dying in the spring.

Last year I had my bees in a canyon at the foot of the mountains. They were in good condition, and seemed to do well for some time after I set them out in the spring; but about the last of May I noticed a great many dead bees in front of the hives, and this continued probably a

month, during which time the bees dwindled instead of gaining strength. At this time a kind of wild foxglove (*Digitalis*) was thick, and blooming all over the foothills. I thought that probably the honey from this or some other plant caused the trouble.

I visited Hermon Rauchfuss, near Denver, in May, 1903, when his bees were dying the same as mine did last year, only worse, I think. We walked over the hills, looking at the honey-plants; and, if I remember rightly, there was much of this foxglove. I. W. BECKWITH.

Lander, Wyo., June 12.

SOME OPINIONS IN REGARD TO THE PROPER WEIGHT OF FOUNDATION TO USE IN SUPERS.

In answer to the request in Stray Straws of June 15 I wish to say that I use thin super foundation altogether in sections, also a half-sheet of thin super in the brood-frames, this latter with wire. I prefer this way, as I find it very economical. Of course I am a beginner here in the Ozark.

E. C. BAKER.

Sylva, Ark., June 22.

PREFERS EXTRA THIN.

I prefer the extra-thin, and have used nothing else for several years, using last season over 75 lbs. I shall use as much again this season. I began the use of the thin when commencing bee-keeping a number of years ago, and changed to extra-thin on account of the too heavy midrib. However, I never had my attention called to it by a customer; but I could tell it easily, and expected to hear from it. I got 20 lbs. of thin foundation this year for frame foundation, and my daughter cut up a 5-lb. box of it into section starters by mistake (full sheet and bottom starters), so I shall have a chance to test it once more, and may report later my findings.

I have used a good deal of extra-thin foundation in shallow extracting-frames (full sheets), and with a heavy colony. In hot weather the foundation stretches and buckles considerably between the wires unless the Miller splints are put in.

Regarding the bees gnawing foundation, no doubt they will gnaw the extra thin a little worse than the *thin*; but not enough worse, I think, to counterbalance the difference in the quality of the finished section honey.

F. W. HALL.

Hull, Iowa.

I use extra-thin foundation for sections, as the thin is too heavy, and bees will not draw it out when working fast.

BURT SLEASE.

Roswell, N. Mex.

I use extra thin in full sheets because it is always advised. About 2 per cent of it is torn down or eaten full of holes. We find it impossible to put in full sheets of extra-thin foundation with a hot-plate fastener in February and have it stick until given to the bees. Half of it will be loose. Would thin foundation be better?

Diamond, Pa.

A. J. MORSE.

[The thin would undoubtedly stay better.—Ed.]

I have used both the thin and extra thin, and find that the thin foundation is the better. I use thin altogether now, for the simple reason that bees will not tear it down as readily as the extra thin. I have talked with both veteran and amateur bee-keepers on this subject, and they all favor the thin foundation for the reason given above.

There is another reason for using thin foundation, and that is, it is easier handled in warm weather, and it will not topple over when used as a bottom starter according to the Miller plan.

Beardstown, Ill.

H. W. DOERR.

GOOD PRICE SECURED FOR BULK COMB HONEY; WHAT CAUSES MOLD?

I got 25 cts. per lb. for all my honey. How is that for chunk honey? Is it possible we are going to get some of the benefits the glucose-factories have been enjoying for years?

It was very warm here in January, and I thought I would look in my hives. I opened one and took out a brood-frame with about 6 or 8 lbs. of honey, and the rest of the comb was empty, and green with mold, and water or sweat was running off the honey. There were no bees on this comb. I should like to know what caused it to turn green, and how to remedy it.

If I take two or three brood-frames filled with brood in all stages, and put them in a hive, will the bees rear a queen if there is no queen-cell on them when you take them from the parent hive?

Will a colony of bees winter in a shallow extracting-super, or would it be better to give them two supers to fill up for winter? Will bees winter in an eight-frame observation hive in this climate?

H. W. CRONE.

Ansted, W. Va.

[Combs will become moldy if left in the hives over winter when there are not enough bees to cover them. As a rule, it is best to have no more combs in the hive than the bees can occupy. The tendency to mold is greater when the hives are in a damp cellar or when the weather is damp and foggy.]

If there are eggs or very young brood in the combs a queen could be reared by the bees on the two or three brood-frames that you would select for your nucleus. The best way, however, is to provide such a nucleus with a queen-cell that is nearly ready to hatch.

A colony of bees might possibly winter in a shallow extracting-super, but we think it would be much better to provide two supers or sections instead of one. If an observation hive is well packed, and if other conditions are normal, a colony ought to winter well, even though the sides of the hive were made of glass. Rather more packing, however, will be needed.—Ed.]

YOUNG WORKER BEES IN QUEEN-CELLS.

In going through a colony of hybrids that had swarmed, cutting out all the queen-cells but one to prevent after-swarms, I found three queen-cells with worker-bees capped up in them. There were these three chances for the single cell to leave them queenless. These cells appeared as large and perfect in shape as any.

Duluth, Ga.

C. BUSH.

OUR HOMES

By A. I. Root

Bless the Lord, O my soul, who forgiveth all thine iniquities, who healeth all thy diseases.—PSALM 103:3.

May the Lord be praised for the health, strength, and enthusiasm he has seen fit to give me as I look out this bright morning, August 1, on the work he has for me to do. There have been so many inquiries in regard to getting health on Terry's plan of uncooked food, or on similar plans laid down by other writers, that I have been beseeching Terry to write a brief little book or pamphlet outlining the way in which he secured most perfect health after the doctors had told him he had only a little while to live. But Terry is so busy he thinks he can not get at it—at least not just now. I finally told him if he did not write such a book on the subject I might undertake it myself (to be given away), and I feel just like starting it this morning. In other words, I feel that God has given me a message to be given to suffering humanity; and I feel so sure it is his message that I really enjoy the idea of giving it free to all who may want it, "without money and without price."

I should like to say, as the prophet did, to those who have suffered from poor health and a lack of enthusiasm, "Ho, every one that thirsteth! come ye to the waters, and he that hath no money; come."

I have had this whole matter in mind, as you may remember, for many years. In fact, I have prayed over it again and again; and when people have come to me for advice in regard to remedies I have often prayed over the matter before giving an answer. Several times in years past I have thought of recommending some of the medicines I had tried, and which I thought for a time were beneficial; but it seems as if the Holy Spirit bade me be careful. When the grown-up sons of Jesse were presented to the aged prophet Samuel he thought they would do very well. But Jehovah said, "Not so," and finally directed him to the shepherd boy David. Well, I have reason to feel that I have been directed much in the same way in recommending remedies. I can with a clear conscience recommend to you all the things I have called "*God's medicines*;" and, even though other remedies such as are used by our physicians may be all right at the proper time, I do not feel at liberty to recommend any of them. The outdoor, the pure water, the fruit that comes right from God's own hand, and the delicious and health-giving grains, are all *God's gifts*, and I feel no hesitancy in recommending them.

On page 955 of our last issue I told you that the three young growing boys declared they felt better, and their strength held out better, when they ate just shredded biscuit and milk in place of an elaborately cooked meal. Well, the boys seemed to have such a preference for the shredded-wheat biscuit that I commenced using it myself; and I have been eating it more or less three times a day ever since. As Mrs. Root thought we *must* have meat and potatoes and other things we are accustomed to have, I for a time ate a little of the other things, then finished up with my biscuit and milk. Finally I decided one morn-

ing to have just two shredded biscuits and a cup of milk, and nothing else, for my breakfast. It is true I did not feel quite satisfied, but I thought I would stop right there and see how my strength held out till noon. It held out a great deal better. When I went to take my nap just before dinner I did not feel nearly as much in need of food as usual. But I slept soundly, my mouth did not taste bad at all when I woke up just at dinner time, and I felt especially clean and well all over. For my dinner I had a little bread and butter, but otherwise about the same as for breakfast, and I have been pretty nearly a month now on this simple diet. Occasionally I have an egg; but, aside from cooking the eggs, I can get along very nicely without any cooking at all—at least in warm weather.

Now, friends, here is a tremendous achievement, aside from the matter of better health. Several times when we have been discussing the difficulty (and almost impossibility) of getting some one to cook, and wash the dishes in the home (it is worse in Florida than here in the North), I suggested that God was striving to teach us some useful lessons. Now, if I have got matters right, or, in other words, if I am truly interpreting the voice of God that speaks within me, the lesson that he is striving to teach us, and that we are so stubbornly refusing, is this: We do not *need* any elaborately cooked meals, with a great lot of dishes to contain different articles of food, for

The pie and cake,
That so much fussing make,
Give one the stomach ache
And send one to the undertaker.

After all I have said in favor of the lean-meat diet in years past, you may think this a rather wide departure. Well, I am not *quite* ready to become a vegetarian. I believe that milk and eggs were designed by the great Father above to be a large part of the diet of the human family. And, by the way, I am very fond of cheese, and I like a little bit every few days; but I shall have more to say about this soon. At present I am eating no meat at all. I do not need it, and do not care for it. I am not using any tea or coffee at all (nor headache powders). I do not need them and do not care for them; and when I feel the strength of mind and body and enthusiasm that I have this morning, I can say, "May the Lord be praised that neither tea nor coffee (nor *headache powders*) have any thing to do with the feeling of elation and enthusiasm that I feel I have." Yes, and I can say, too, that I feel pretty sure that no meat of any kind has any thing to do with it as I will tell you a little later. Now, as I am planning to have quite a talk this morning, a sort of an A B C book on health, I hope you will excuse me if I go into details pretty thoroughly.

THE A B C OF GETTING WELL AND KEEPING WELL.

I have described pretty well my breakfast. I forgot to say that I want a liberal supply of butter with my shredded biscuit. I think the biscuits cost about a cent apiece; and I should need about a cent's worth of butter and about two cents' worth of milk—just think of it; a good square meal for a nickel, and no cooking; no dishes to wash except the teacup and plate, and a

knife to handle the butter. If you want an egg, it can be cooked quickly and easily and nicely on one of the cheap oil-stoves. Terry uses Pettijohn's whole wheat in place of the shredded biscuit, and I have used it until lately. I may go back to that again; but just now the biscuit seems to "hit the spot" better than any thing else. After putting on a liberal supply of butter I chew it a long while, just as Terry directs with raw wheat. By the way, sometimes when I can not get Pettijohn rolled wheat I have tried eating regular wheat, of course picking it over carefully, and then it is all right; but it takes too long to chew it. The wheat grains must be crushed or rolled or ground up in some way to save the labor of chewing. I prefer skimmed milk rather than new milk, because I do not seem to need the cream.* While at my sister's in Manistee I was pleased to find Mr. Gardner was also using the shredded biscuit. His plan was to cover it with cream and mash it down with a spoon. Now, I think it is better for my health to chew the biscuit and butter, without mixing it with either milk or cream, until it is reduced to almost a liquid by the action of the saliva. It is only after a thorough chewing in this way that you get the delicious flavor of the wheat. Terry says he enjoys eating his meals more than those people do who eat a great lot of every thing, including elaborately prepared delicacies, and I can say the same. I always feel happy nowadays when it comes mealtime; and I thank God for the enjoyment that my meals afford more than when I had meat and potatoes, cake and pie, strawberries and ice-cream, to top off with. The strawberries are all right, as I will tell you when I get to it; but the pie and cake and cane sugar are all wrong for me, and I honestly believe it is so with thousands of others. We have a neighbor who makes beautiful salt-rising bread, and I usually have a half a slice of that with my biscuit. The older it is, and the drier, the better I like it; for I can chew it up then just as I do the shredded biscuit. By the way, zwieback answers very well, especially if it is made of whole-wheat bread. If in very poor health, very likely the rolled raw wheat that Terry uses, *well chewed*, will be the best thing for you; but as people differ, we can doubtless, each one of us, make the selection which suits us best; but do not try to eat too many different things at the same meal. If I am correct, Terry finishes up each meal with raw or uncooked fruit. Now, I do not particularly care for fruit in the morning. I do not think I need it; and if I eat it during the day, and eat as much as I want, it somehow seems to make a disturbance. I have also heard that Terry recommends only two meals a day. This might be all right for him; but as our people have long been accustomed to three meals, for the sake of sociability, if for nothing else, I have three light meals instead of two larger ones. We have for years had our supper at 5 o'clock. My supper includes about what I have described—shredded biscuit and a cup of milk. But, about 7 o'clock in the evening

I have what might be called a fruit meal—fruit and nothing else. I have told you about how I eat apples every evening just before going to bed, and I can heartily indorse what I said some time ago, to the effect that apples are "the best medicine in the world" for me, and I believe they are also the best *fruit* in the world for me.

Some eight or nine years ago I became enthusiastic over the Yellow Transparent apple. I bought two dozen trees, and not only planted some of them on my own premises but on the grounds of each one of the children; and now we all have those beautiful Yellow Transparent apples on all of our premises. I can not tell you how I enjoy watching our apples grow, and looking forward to a time when they will be ripe and ready to drop. To have an apple just right, you want to get it so it will almost drop from the tree if you just look at it. It is understood around here that we are not to pick the apples from the trees of our neighbors; but after the apples drop on the ground everybody is at liberty to help himself before the chickens get them. I told Mrs. Boyden (Blue Eyes) the other day that her early apples were dead ripe, and that she must gather them. I said to her that one great big beauty of an apple dropped off just because I looked at it. I do not know but some of the grandchildren thought grandpa gave the tree a little *shake* when he looked at it. Well, when these beautiful apples get so ripe that you can sink your thumb into them easily, or so you can almost peel them as you would a peach, it is perfectly safe for me to eat *just as many as I want or care for*. Our people used to worry when they saw me with a great plate of apples in the evening; but they have got over worrying now. With a sharp knife I take off the peeling, but I greatly enjoy eating cores and all. Somebody told me years ago that apple-seeds and the meat from peachstones have a special virtue in helping digestion, and I have reason to believe it is true. They are like nuts, you will notice. By the way, I am not using nuts very much just now. I do not seem to need them; but I do crave and enjoy good rich cheese. When I am eating great quantities of apples, as I am now, the cheese somehow comes in to make a balanced ration. The acid of these apples I have mentioned seems to have a very beneficial effect, especially in warm weather.

A great deal has been said about the value of lemons, and no doubt they are a great medicine; but these rather tart apples, I think, answer the same purpose, and I find they are pleasanter to take. Besides the Yellow Transparent apples; we have the Early Harvest and the Red Astrakhan. The latter, when grown to perfection, is not only a beautiful apple but a most wholesome one. Three years ago I purchased a little tree of Storrs & Harrison, and this summer it bore a good heaping half-peck basketful of beautiful apples. I think I have been eating a great lot of apples every evening for the last four or five years; and if they were deleterious in any way I should certainly have found it out before this time. They are certainly preferable to any kind of physic sold in the drugstores or that grow in the woods or fields, and I find them more pleasant to take.

Last, but not least, I have for some time back made it a point to drink just as much pure water as I can without feeling uncomfortable. I drink

*A friend of mine who is connected with a sanitarium at Clifton Springs, N. Y., says a good many of their patients can not take milk regularly unless it is skimmed. Milk from the cows, or with all the cream stirred in it, seems to be too rich for such people, and I am sure skimmed milk is better for me than the other.

nothing at my meals but a cup of milk; but about two hours after each meal, when I begin to feel thirsty, I take a big drink of boiled cistern water. I prefer it boiled, because the large amount of coal smoke in our vicinity settles on the roofs of even our slated buildings so as to give the water a smoky taste. Boiling precipitates this smoke and dust, and makes sure that all germs are destroyed; and I am pretty sure that boiled water is more wholesome—at least for myself.

In closing let me say something about the lean-meat diet. It is no doubt a fact that many people *can* live on a purely vegetable diet (and perhaps keep in better health on such diet), while others can not. I do not pretend to decide in regard to this matter. I believe a majority of our physicians think a mixed diet is the most wholesome. Those who have charge of the military schools of our government have, I believe, decided in favor of a mixed diet for soldiers; and, notwithstanding what I have said in the above, if I should have an attack of chronic dysentery, just as I have had every little while almost all my life, I think I would adopt an exclusively lean-meat diet for several days until I got over it. This diet which I have prescribed so many times in the past dozen years or more is hardly worth while to go over. What is termed in restaurants a "Hamburg steak"* comes the nearest to what is called the Salisbury treatment. It is just chopped or ground lean beef nicely broiled. Take this and nothing else three times a day for three or four days, and, so far as my experience goes, it will wind up every thing in the line of dysentery or summer complaint.† You will need to get fresh meat for this purpose. Now, our vegetarian friends might be able to furnish me some substitute for the lean-meat diet. Milk toast is very commonly used, and I think I would try the milk toast first. If that will not answer then try the ground meat.

Some have anxiously inquired about garden vegetables. You know I have been a great exponent of gardening; in fact, I have written several gardening books. Well, just now we are having beautiful green peas, string beans, Golden Bantam green corn, etc.; and I occasionally have a small dish of some one of them with my shredded biscuit—not all three of them, and not as much of any as I might feel inclined to eat. I can use almost any of these without any bad results if I make a principal meal of them, and be careful not to eat too many. Nature will handle things difficult of digestion if not too big a dose—especially too big a dose to start with. You can gradually accustom a cow or horse to a change of food; but do not give them too much the first time. It is so with humanity, I am sure. People are made sick by eating honey because they have not had any for a long while, and then all at once they eat a big lot. Notice how the boys

get sick after cutting a bee-tree, or how children eat too much of any thing when they first get hold of it. I eat a great lot of apples and feel better than without them, because I have eaten them for years just before going to bed. In fact, when I am away from home, and am obliged to go without the apples, I do not sleep as well. There seems to be a turmoil in my digestive apparatus because the apples did not come along at just the accustomed time. I told you that I had lost my taste for sugar. I do not care for it, and feel unpleasant after eating it. When I begin to feel hungry for any sweets I find a little honey is better than sugar; but at my age, and with the present condition of my system, I feel better without sweets of any kind. Perhaps if I were a growing boy it would be different.

I have almost taken it for granted that, with the great light and teachings now before us, every invalid is staying outdoors as much as possible, and especially sleeping outdoors, or as near it as can be. Not many days ago I found two people, right in the middle of July, sleeping in a room with all the windows closed. They said they could not open them on account of flies and mosquitoes, and they had not yet got around to having screens. One of them owned up that he was threatened with consumption, and had been for some years. May God help us in our efforts to "spread the gospel" of pure air as well as pure water (and wholesome food), such as God intended we should use.

As this matter of eating fruit is one of the most important things in regard to getting well and keeping well, I hope you will excuse me for going to some length on the subject, and using some very plain talk. A good many say they can not use fruit; but you can if you commence by taking a little at a time, and take it at just such an hour each day. About 7 o'clock in the evening seems to be about the best time for me. Commence with one very ripe mellow apple—one that is rather tart. After a few days you can take two; then take three. It is something like getting used to eating lemons; and you want finally to become sufficiently accustomed to them so that you can eat enough good mellow apples to cause the bowels to move freely the next morning. Eat apples enough or use fruit enough of some kind to have the bowels move surely *once* a day, and if they move twice I think it is still better.* Fruit, especially the apple, such as I have mentioned, seems to have a cleansing power, and also power to neutralize any tendency toward biliousness, such as many people have in warm weather. You can soon determine how much fruit is needed to produce the desired effect. Strawberries, and berries of other kinds, will answer the same purpose, but they are likely to be rather expensive—rather more so than the apples. Now, do not be troubled if this fruit does cost you a little more than you have been paying for your meals. It need not cost you more than beefsteak, and not nearly as much as going to a doctor or buying medicine at a drugstore to cure constipation. Besides the fruit, you will need to drink plenty

*When you go into a restaurant and order a Hamburg steak, tell them you want it without onions. Unless you do they will be pretty sure to serve it with onions; and onions always distress and trouble me.

† You need not think I am recommending something I have not tried thoroughly; for, to tell the truth, at one period in my life I was on the lean-meat diet for 18 weeks, not having even a cracker nor a crumb of bread during all that time. I know from practical experience that one can live and get along very well on either meat alone or on a vegetarian diet alone.

* If this fruit diet should answer better than any alarm clock in getting you up very early in the morning, do not be worried. Getting up early will be a good thing for your health, I am sure, besides the thorough moving of the bowels before taking up the tasks of the day.

of pure soft water, but not at the same time you eat the fruit nor at mealtime. Whenever you feel a little thirsty, drink as much pure water as you can without feeling uncomfortable. In warm weather, Terry says, we ought to drink half a gallon a day; and after carefully observing the matter I am sure that plenty of water has much to do with cleansing the system from any impurity that might otherwise accumulate. All sorts of diseases and aches and pains are the result of letting foul and fermenting matters obtain a lodgingplace in different parts of the system. Of course, you must have also abundant exercise in the open air. No one can "get well and keep well" who is not busy with mind and hand; and he ought to be busy in helping somebody, or in helping along this great busy world where God has placed us.*

GETTING WELL, KEEPING WELL, ETC.

It is refreshing to find that my health notes in the present issue are so well seconded by some of the great doctors. See the following, which we clip from the *Cleveland Press* of Aug. 5:

THE SECRET OF KEEPING COOL.

That is a very simple secret—how to keep cool in summer. It may be told in a few words—live a wholesome life.

And what is a wholesome life for "dog days"? Well, first of all, keep well. Keep clean, inside and out. This means a daily bath, warm or tepid, and the drinking each day of from two to three quarts of pure cold water, taken at times other than with or near meals. It also means attention to the excretions.

Wholesome food for the summer should be light. We need much less food in summer than in winter. Fruits, grains, and cereals, salads, and a little milk or cream—these afford every need for feeding the body and for pleasing the taste. Two meals are better than three, and between meals nothing should be eaten. Spices, condiments, pastries, and all fancy foods should be avoided. Tea, coffee, and tobacco tend to make one feel the heat. Alcohol in any form is a "delusion and a snare." A glass of beer or a "peg" of whisky may make one feel cooler for a time, through paralysis of the nerves. The first effect, however, soon passes, and then he feels hotter than ever. For relief—another drink, and so on.

Lastly, if you want to keep cool in summer, don't worry about the heat; don't talk about the heat; don't, if you can avoid it, even think about the heat. If you will follow these simple rules you will not only be safe and comfortable during the heated term, but will come actually to enjoy, as many do, the "dog days."

W. R. C. LATSON, M. D.

A COMFORTABLE HOME FOR TWO OLD PEOPLE.

While I have been writing a series of articles under the heading of *Our Homes* for the last twenty-five years and more, the consideration of building what is called a home has often come up. When we had a family of five children, before any of them were married we built a brick house that we thought would be about right; and it was about the thing we needed until the children married and moved away. Then Mrs. Root protested about having such a large house to care for. I proposed locking up some of the rooms that are not needed; but she insists that it is almost as much work to care for such a room and its contents as it is to care for an occupied room. She had been talking about a little home that could be cared for with very little work. The

"cabin in the woods" No. 1 filled the bill pretty well except when company came. This little "home" was only 14x20; but with a cheap cloth curtain across the middle, making two rooms of it, and a little kitchen on the back end, it answered very well. When we went to our Florida island we built something on the same plan, only a little larger, and had it planed and painted, inside and out. This answered very well; but as there was no ceiling overhead, and there were cracks where mosquitoes got through, it did not suit Mrs. Root. Accordingly, when we decided on having a permanent winter home at Bradentown, Fla., we spent quite a little time in making diagrams and discussing various matters. We finally settled down on the cottage shown on page 819, July 1st issue.

As several inquiries have come in asking about the interior arrangement we submit the following diagram; and after having lived in the house one winter we find it about right. We discussed

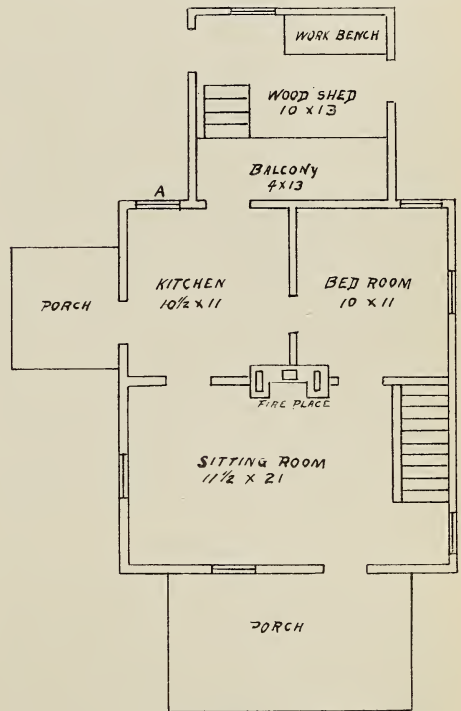


DIAGRAM OF A. I. ROOT'S COTTAGE AT BRADENTOWN, FLA.

having a bungalow instead of a 1 1/2-story house, but it would have cost quite a little more money. Going upstairs and down very much is tiresome, it is true; but when you go to the expense of making a good substantial roof over your head it seems almost too bad that this roof should not cover *two* sets of rooms instead of only one. Another thing, a house made so nearly square is not very common, but a square building gives one much more room for the amount of material than any other unless it is a round room. The bedroom, as you will notice, has two doors and

*In concluding these health notes I would advise every one interested in what I have outlined to read T. B. Terry's articles every week in the *Practical Farmer*. My own opinion is that the great Father above is leading Bro. Terry to explore regions almost unknown along the line of getting well; and I feel he is enlightening mankind in a matter of more importance than almost any thing else that has ever before come up in the way of relieving and avoiding pain and suffering here in this world.

two windows. In warm weather these doors and windows are always open, so we get a breeze across the bed, no matter what direction the wind blows. All of the windows and outside doors are, of course, well screened with wire cloth. As a fireplace gives better ventilation than any other arrangement ever invented, we had one made, as you will notice, in the very center of the building. There is fuel on our acre of land—probably all we shall ever need. When the nights and mornings are cool, a very little fuel gives the best warmth I have ever found from any source, and at the same time ventilation that is sure and ample. Our carpenter told us to be sure to have the fireplace and chimney entirely disconnected from any part of the woodwork. This makes it safe against fire; and the sagging of any part of the foundation would not cause the plaster to crack. The chimney has two flues clear up to the top—one for the fireplace and the other for the kitchen stove, so there can be no conflict in the draft.

Although most of the houses in Florida are not lathed and plastered, we decided on having the whole house finished in that way; for it is almost the only way to avoid having crevices where flies and mosquitoes and other insects might possibly find a hiding-place.

While we ordinarily have but little use for an upper story, we find it is very convenient when friends come to see us. The upstairs part is done off very much like the one below, except that there is one very large clothespress at the head of the stairs, and two more on the north side of the chimney. We have a very convenient clothespress opening from the little bedroom under the main stairway. The ground is slightly sloping back from the street so that our west or front porch is only about 18 inches above the level of the ground; but on the back side, where the woodshed is, the floor of the house is nearly four feet above the ground. This gives us a chance to have what we call our "balcony," which is a floor with a railing around it on a level with the floor of the house. Then, some steps, as shown, go down into the woodshed, and the fuel is piled up underneath this balcony. In one corner I have a work-bench.

Just outside of the door that opens into the woodshed we have a safe covered with wire-cloth for keeping food and provisions secure from flies, and yet where they can get a cool breeze.

Right underneath the window marked A is a hatchway that leads into my incubator cellar under the northeast corner of the kitchen. This incubator cellar is about half above ground and half under. As I explained some time ago, it is made of circular brick such as you use in making a cistern or well. The incubator stands in the center; but as the wall goes up only about 3 ft. to the level of the ground, there is a nice convenient shelf on the ground level for placing various articles so as to have them right at hand without any stooping over.

Now, all things considered, we find this a very comfortable home for a couple of old people; and although it is a comparatively small house, there is room enough for the children or grandchildren when they find it convenient to call around and look in on the old folks.

Some of you may wonder why we did not put

on at least a little ornamental work so our cottage would not look so exceedingly plain. Well, we thought of that, and we may add something of that kind later, especially around the porches. But let me call your attention to the fact that when Ernest and John built their cottages across the way, something over twenty years ago, they paid out a good deal of money for ornamental work over porches, upon the cornices, etc. Well, Ernest has recently had a man pulling down all this ornamental scrollwork, principally because it was full of cobwebs, difficult to paint, and, besides all that, it is all out of fashion. Work that cost a great deal of money several years ago, has been torn down and burned up for kindling-wood; and I believe the general verdict is that the house looks better without it. Mr. Calvert has been doing similar work on his own home; and in remodeling our own porch a few years ago, we took out in like manner a lot of expensive "gingerbread work." Mrs. Root objects to any thing about the home that prevents taking a broom or brush and getting out the cobwebs and dust so the whole structure can be repainted, say once in ten or fifteen years, or when needed. I believe a similar reform is being inaugurated in the way of furniture. Instead of having fancy work that harbors dust and spiders, and is difficult to clean, most furniture is now being made plain and simple. Put on a high finish, if you choose, but do not have a lot of complicated ornamental work. Speaking of finish reminds me that our Florida home is all done off inside with what is called the "beeswax finish." Turpentine and beeswax are melted together; then after staining and filling the woodwork, this beeswax compound is put on and rubbed down hard with a woolen cloth until it gives a polish. Woodwork finished in this way is not easily marred by bumping, and a little more beeswax with "elbow grease" will restore any place marred or spotted by accident. Huber had his new house finished in this way, and our large new office where I sit dictating this has all the woodwork finished off with the beeswax composition that I have described. It is cheaper than varnish, and anybody can do it if he is willing to furnish the muscle. Surely bee-keepers ought to be able to adopt the beeswax finish for the woodwork for their homes.

In regard to this beeswax finish I have been describing, all kinds of varnish, or at least most varnished work, is likely to crackle with age, besides showing white streaks where it has been bumped or scratched. This wax finish never crackles, and never shows any white streaks; and is less work to renew it when marred than it would likely be to scrub the painted woodwork with soap and water.

Just a word in regard to porch floors. It now seems to be a difficult matter to find any sort of paint or floor preparation that will stand the weather, especially after snow has drifted in on the porch and melted, or where the rains have beaten in and the water has been allowed to stand for some time on the porch. After studying over this matter we made our porch on the island with narrow boards planed both on the tops and edges, placed $\frac{1}{4}$ inch apart. We liked it so well that our porch in Bradentown was made in the same way. I think the floor boards

were about four inches wide—possibly five. They were planed on the edges; and before laying the floor we stood the boards all up edgewise and painted the edges; and after they were laid, the tops were given a good coat of paint. The great trouble with a floor made of matched flooring is the shrinking and swelling whenever the rain beats in and stands for some time on the floor. Another advantage of a porch with openings between the boards is that, in sweeping or scrubbing, the dust or the water goes right down through, and it is very soon all dried off. I am sure such a porch floor will last much longer than where we have a tight floor of matched lumber. Of course, there should be a little slant outward, although this is not so important with a floor with a slight opening between the boards.

Since dictating the above, Mrs. Root objects to having the opening between the boards large enough to let small articles fall through; and I notice that T. B. Terry, while recommending a similar porch, says we should push the boards up tight together. When they come to shrink this will leave a crack large enough to let the air in and dry out the floor. He says that, where we use matched flooring, the water is sure to get in and rot out the floor much sooner than where there is a crack between each two boards.

OUR "ROBINSON CRUSOE" ISLAND—ANOTHER GLIMPSE OF IT.

We clip the following from the *Southern Ruralist*. As it was written by one of my particular friends (a schoolma'am), it may be of interest to our readers:

Five years ago last month we landed in Manatee Co., Florida, where it is perpetual summer. We settled on a little island two hundred yards wide and eight miles long—the Gulf of Mexico on the west and Sarasota Bay on the east. The gulf is about 1000 miles wide; the bay, one.

There was no one living on the island when we came, and only two other families now, so you see our peaceful slumbers are never disturbed by the hurry and noise of the busy city.

The growth on the island is oak, with leaves green all the year; cedar, cabbage palmetto, sea-grape, rubber, and a great variety of grapes and other vines and bushes. We grow our vegetables in the winter months mostly. There was an abundance of coons, foxes, and wild cats when we first came, and we had to fight our way to save our poultry, and coons are bad yet.

There are six of us children—four girls and two boys. We girls went to school in a little row-boat. We never had any mishap, although the waves toss us about pretty roughly at times.

My oldest sister is lately married, and lives near. I am teaching school, and the two youngest, 12 and 14 years, have to paddle their own canoe.

Father is keeping bees, and raising queens for The A. I. Root Co. and others. He sends his queens by mail in little cages. Our main source of honey is saw-palmetto and cabbage-palmetto. We have extracted over 5000 pounds so far from saw-palmetto. Cabbage is not in bloom yet.

My two brothers and brother-in-law fish. They each have a sail-boat and carry a net 200 or 300 yards long on each boat. When they find a school of mullet they surround them with their nets, pushing their boats with long poles, then they pound on their boats and on the water to frighten the fish, when they will rush into the nets and gill themselves. Then the boys pull the nets back into the boat and take the fish out, when they will be ready for another strike.

Sometimes they come home loaded down—2000 to 2500 lbs. to the boat. Then sometimes they fish all night and do not catch enough for breakfast.

This is a delightful place to live in. The thermometer seldom goes above 94 degrees nor below 40.

We have two Jersey cows and a nice flock of hens. We do not have to build houses for either.

Sea-turtles are crawling now. They come out and dig a hole in the sand and lay from 100 to 150 eggs as large as hens' eggs.

The largest turtles weigh about 400 lbs., but dress only about 60 lbs. of clean meat, which is about as good as Florida beef. They can hardly crawl on land, and are no trouble to catch; and, once turned on their backs, they can never get over again.

Bathing in the gulf is superb—no undertow, and lots of beautiful shells on the beach. We can sit on our porch and see the launches and sail-boats flitting about on the bay, and large vessels on the gulf.

There is an abundance of fish and oysters to be had for the taking, and plenty of shark, stingaree, and mosquitoes to make it interesting. Before coming to Florida we had considerable sickness, but not enough since to need a doctor.

FLORENCE SHUMARD.

"LET US QUIT BEING HYPOCRITES."

We clip the following from the *Christian Endeavor World* for June 11:

WHAT MIGHT HAVE BEEN.

The San Francisco *Star* has the following sensible comments on the recent visit of the fleet:

"The \$180,000,000 invested in the war-ships now in San Francisco harbor would irrigate 6,000,000 acres of arid land, and provide homes for 120,000 families, giving to each family fifty acres of land. That amount of money would build a railroad from the Atlantic to the Pacific; and such a road owned by the people and for the benefit of the people would squeeze every drop of water out of the railroads of the country.

"That amount of money would build and equip a national telegraph and telephone system, which, conducted for the people, would squeeze every drop of water out of the privately owned telegraph and telephone systems.

"That amount of money, properly spent, would go far toward relieving the people of the tremendous monopoly burden now resting on their backs.

"That amount of money would build from sixty to one hundred great electric-power plants for the people, and free them from the monopoly that is now skinning them.

"Instead of building more war-ships, isn't it time to call a halt? With tens of thousands of our citizens begging for an opportunity to earn a living, isn't it time to call a halt on this wicked waste of money and energy? If we are going more and more into the war-ship business, let us be honest and pull down our churches. If we are to glorify war, let us quit glorifying the Prince of peace. Let us quit being hypocrites."

We are very glad indeed to see that the *World* gave place to the above; but what I would like to say would be a hearty amen to the above. And, by the way, it would rejoice my heart to hear a hearty amen to the same from every religious paper in our land. Is it not true that we already have too many million-dollar war-ships as well as too many *revolvers*? Let us quit being hypocrites, as the San Francisco *Star* has it, and come out in the open, and demand that this war-ship business be stopped in exactly the same way that we as a people not only demanded but *succeeded in getting*, the motto back on our coins, "In God we Trust." And if we trust in God we certainly do not need to invest 180 millions of dollars in one fleet of war-ships.

OUR \$180,000,000 FLEET OF WAR-SHIPS.

The above was prepared for GLEANINGS several weeks ago, and would have been printed without further comment; but I presented the matter in our Thursday-evening prayer-meeting, and our good pastor, Rev. J. Edward Kirby, put the matter in such a different light that the item was held over. He said that our good President's plan was to make this fleet of war-ships a great messenger of peace. His design was, in fact, to have it do missionary work. The United States has already put a stop to superstition and cruelty in Cuba; but we could do this only by means of our war-ships and brave men. In a like manner the United States, with the assistance of other nations, has just recently begun to demand the cessation of such outrages as they had in China, and the Armenian massacres in Russian territory. It would be a sad thing for us to undertake to restore order and have some heathen nation beat us in our effort to protect the

helpless women and children of other lands in the same way we protect those of our own domain. There is practically no suffering from starvation anywhere in the United States or wherever this nation has sway; but in China and other foreign lands starvation is continually going on, and particularly among helpless women and children. If the United States, in connection with the other powers, could take cognizance of these outrages, and protect the suffering and innocent ones, it would certainly be a magnificent missionary enterprise; and if *nothing else* will give us the ability to do this, let us have a fleet of warships. Our good President is a pusher, and we have abundant reason to thank God for it. He would have to be more than human if he did not, in his pushing, once in a while make a mistake. We rejoice to have a man at the head of our nation who insists on having our laws enforced, even if it be huge corporations that try to trample law under foot.

Let me close this little talk by calling your attention to the importance of attending the weekly prayer-meeting; for this meeting is, in my opinion, the place above all others where questions like the above should be discussed in a kindly and Christian spirit. Somebody said in the same meeting that as good a man as Oliver Cromwell, many years ago, suggested that, while we trust in God, we should at the same time "keep our powder dry."

The *Independent* for July 30 suggests the President is going to extremes in the matter of battle-ships. It says:

Let President Roosevelt initiate a movement that will make the United States the first of the world powers to disarm. That would be an achievement worthy of the Nobel Peace Prize.

USE OF SWEET CLOVER.

The following, by Prof. H. J. Waters, of the Missouri Experiment Station, is a very clear presentation of the case for sweet clover. The writer must be a native of Missouri, because he intends to convince the farmers of the value of this clover by actual demonstration. The article originally appeared in *Hoard's Dairyman* of July 24, which of itself is quite an endorsement, for that journal prints nothing but up-to-date, reliable, and scientific information; moreover, it is read by a great army of scientific dairymen.

We have had some experience with sweet or Bokhara clover. Stock are not fond of it, but will eat it when very anxious for something green. Some have tried to brand this weed as injurious, and say its cultivation on that account should not be encouraged. About that I think this way: Missouri is the banner weed State of the Union, I think. There is no idle land, no vacant places in Missouri, during the growing season. It is all occupied either by crops or weeds. Now, this clover is one of the best soil-builders we have. It will grow on land too poor for cow peas. It will actually grow on land too poor for ragweed. The question is simply this: Shall we have Bokhara clover or ragweed or horseweed on our poor lands—a weed that will build them up or those that will not? In addition to that, ragweed, ironweed, and other weeds do not furnish any thing valuable whatever; whereas this sweet or Bokhara clover is one of the best bee-plants there is; therefore we could increase our honey crop with it.

We are making this experiment at our station. There are portions of land in this State, hills so poor that we do not deem them worthy of putting in cultivation. We have been trying a number of plants to see if we can find some valuable plants that will grow on that sort of land. We have tried alsike, red, and Bokhara clover. This is the third year we have tried Bokhara clover on that sort of land. Although it lives two years and dies, it comes from the seed almost every year; and on that land now there is a growth of Bokhara clover four feet high. This clover is gathering nitrogen, and adding to that soil and building it up; and in a few years blue grass will grow on it. Land can be

made in that way, and animals can be supported on land of that sort. On this same land, a little later, red clover will grow, and other clovers. We must do something to utilize our poor lands, and the Bokhara clover, in my judgment, will be the clover that will do that. You will see it growing on the sides of the railroad where cuts have been made, and on the roadside where nothing else grows. I would say that the Bokhara clover is much easier to kill than other weeds. We let it grow two seasons, and the third year there was none left.—PROF. H. J. WATERS.

TEMPERANCE

HURRAH FOR FLORIDA!

We clip the following from the *American Issue* for August 1:

On July 1, Lee County Fla., joined the list of dry counties by a majority of about 150 votes in a total of 700 votes cast. Four years ago the wets carried the county by about 80 votes; two years ago they won by 3 votes. The gradual change in sentiment is typical of the progress being made in Florida.

The voting of this county dry leaves but nine counties in Florida where liquor can be sold at any point; and there are less than twenty saloon towns and cities in the State. Thirty-seven counties are entirely dry.

I wonder if it is really true that there are less than twenty saloon towns in the whole State of Florida. I call attention to this because the *Sunday School Times* some little time ago gave Florida more credit than she honestly deserves. If the above statement is all true I think we can all join in saying, "May the Lord be praised."

THE ORPHAN "PROHIBITION BABY."

I was very much pleased to find the following in the *Chicago Advance*:

THE ONLY PLATFORM.

"The Columbus convention has given the country the only political platform this year in which a majority of the people believe. We have presented the only platform that one voter in a thousand will read. The Democrats and Republicans have held their conventions, and the average voter is not able at this moment to understand what the issue is. It will take speeches of acceptance by Mr. Taft and Mr. Bryan to make up some issues, and when they are made up we are certain they will be factitious issues. Prohibition is an orphan baby. The Republican party looks at it and says, 'I'm not its father;' the Democratic party says, 'I'm not its mother.' They try to raise it on the bottle, and the kid dies. What it needs is a party to take care of it."—*Eugene W. Chapin.*

Of course, the *Advance* put it in quotation-marks, as you will notice, as they are the words of the candidate of the Prohibition party for the presidential chair; but the heading, I take it, is one furnished by the *Advance*. The question now is, "What do you think of it?"

OHIO THE CENTER OF WAR ON LIQUOR.

Developments of the present week make it certain that nothing can stop the fiercest and most far-reaching fight on the liquor question that Ohio has ever experienced. State and national questions and the election of a United States Senator are, to an extraordinary degree, being lost sight of in the controversy over control of the saloon.

The Anti-saloon League has accepted the challenge. From their headquarters the announcement is made that the fight is to be every bit as hot as that waged in the Pattison-Herrick contest of three years ago. "It is the same fight, only more general, and with the shoe on the other foot," says Wayne B. Wheeler, State Superintendent of the Anti-saloon League.

Three years ago the League supported John M. Pattison, Democratic candidate, with all its strength. Pattison was elected, the only man on the Democratic ticket, by more than 40,000, overturning a majority secured by Myron T. Herrick, but two years before, of more than 110,000. In the present contest, which is already sizzling in every part of the State, the League is behind Andrew L. Harris, Republican candidate, and is fighting Judson Harmon, Democratic nominee, at every turn.—*Cleveland Plain Dealer.*

Ernest remarks (in regard to the above) that the only thing we have to fear is the half-heartedness and indifference of professing Christians.

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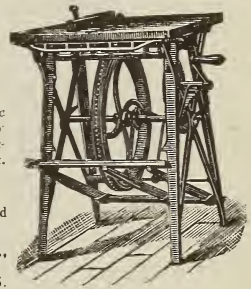
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MEDINA, . . . OHIO

THE BEE-KEEPERS' Headquarters for the Southwest

Texas

Old Mexico

New Mexico

WE NOW HAVE ON HAND
AN IMMENSE STOCK OF HONEY-CANS
(13,000 cases)

Weed's New-process Foundation

We make it right here from a new set of machinery. At present our factory is running nights, as well as in daytime, to keep up with orders. Still we can take immediate care of your order when it comes, as you certainly want the best. Keep out of trouble and get the very best foundation money can buy. We have it here—made in San Antonio.

Plenty of Shipping-cases

12-in. 4-row shipping-cases with 3-in. glass	\$17.00 per 100
9½-in. 4-row shipping-cases with 3-in. glass	15.00 per 100
10-in. 2-row shipping-cases with 3-in. glass	9.35 per 100
6½-in. 3-row shipping-cases with 3-in. glass	9.80 per 100
7½-in. 3 row shipping-cases with 3-in. glass	10.70 per 100

A large warehouse of Root's Bee-supplies

Sold at Root's factory prices. Write us with regard to your wants. Catalog for the asking. If you have mislaid it, send for another.

Honey and Beeswax Wanted

We are always in the market for honey and beeswax in large or small lots. Beeswax, 27 cts. cash; in trade, 30 cts.

Whenever you are in San Antonio make our office your office, and let us show you through our plant. Stay here awhile and meet the bee-keepers as they come in. You are always welcome and will be courteously treated.

UDO & MAX TOEPPERWEIN
1322 SOUTH FLORES ST. SAN ANTONIO, TEXAS



HIGHLAND FARM QUEENS



are the result of years of careful selection and judicious breeding from the best honey-gathering strains of superior long-tongue red-clover Italians in America and Italy. Highland Farm methods will produce perfectly developed, long-lived, and prolific queens. If you want bees that will winter well, build up rapidly in the spring, and roll in the honey, Highland Farm queens will produce them. We are now sending queens of this celebrated strain by return mail at the following prices:

	1	6	12
Select untested queens	\$.75	\$4.00	\$ 7.50
Tested queens	1.25	6.00	10.00
Select tested queens	1.50	8.00	15.00

Safe delivery and satisfaction guaranteed. Send for queen circular—it tells why Highland Farm queens are superior to others.
Address all orders to

J. E. HAND, BIRMINGHAM, ERIE COUNTY, OHIO.

GRAY CAUCASIAN QUEENS.

1905-1906 Queen-breeder in Apiary of Dept. of Agriculture, Washington, D. C.

During that time Caucasians were being distributed by the department so that I handled many of the imported queens and bred much of the stock which other breeders are using, and am in a position to furnish the best of Caucasian queens. They are hardy and prolific, but not great swarmers; are builders of white combs, great honey-gatherers, and their extreme gentleness has won for them the name "STINGLESS." Queens are reared from imported mother of gray type. Have three-band or leather-colored Italians also. They are hustlers.

GRAY CAUCASIANS.			THREE-BAND ITALIANS.		
Untested queens.....1,	\$.75;	6, \$4.25;	12, \$ 8.00.	Untested queens.....1,	\$.60;
Select untested queens...	1.00	5.50	10.00.	Select untested queens...	.75 4.00 7.50.

SAFE ARRIVAL AND ENTIRE SATISFACTION GUARANTEED.

No bee disease ever in this section.

Descriptive circular and testimonials free.

LESLIE MARTIN, :: Birdcroft Apiaries, :: LEBANON, TENNESSEE.

ITALIAN QUEENS

And nothing but Italians. An improved superior strain is what QUIRIN-THE-QUEEN-BREEDER raises. Stock is Northern-bred and hardy—not a single colony lost during the past winter; have five yards, all wintered on summer stands. Am now taking off supers of nice white-capped clover honey. Prices of bees and queens as per below:

Prices of Queens after July 1.	1	6	12
Select queens	\$.75	\$4.00	\$ 7.00
Tested queens	1.00	5.00	9.00
Select tested queens	1.50	8.00	15.00
Breeders	3.00	15.00	
Straight five-band breeders	5.00		
Two-comb nuclei, no queen	2.25	12.00	22.00
Three-comb nuclei, no queen	3.25	18.00	32.00
Full colonies on eight frames	5.00	25.00	

All queens now go by return mail. Safe arrival and pure mating guaranteed. We employ 400 to 500 swarms. Can furnish bees on L. or Danz. frames. Add price of whatever queen is wanted to nuclei or colony. No order too large, and none too small. Over 20 years a queen-breeder. Address all orders to

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ITALIAN QUEENS



Fine young prolific 3 and 5 banded Italian queen, untested, only 75c; extra-fine queen \$1; tested, \$1.25. Full colonies in 8-fr. hive, with queen, \$5.50; 3-fr. nucleus, with queen, \$2.75. Safe arrival guaranteed. Directions to introduce go with queen. Price list free.

J. L. FAJEN, ALMA, MO.

ITALIAN QUEENS

Bred from best stock to be had in the country, and by best methods, insuring beautiful, vigorous, long-lived queens. Prices for 1908:

	1	6	12
Untested	\$1.00	\$ 5.00	\$ 9.00
Tested	1.50	8.00	15.00
Select tested	2.00	10.00	14.00
Breeder	5.00		
Two-frame nucleus	2.25	12.00	22.00
Three-frame nucleus	2.75	15.00	28.00
Full colony on eight frames	5.00	25.00	

Add queen wanted to above.

I shall offer no Caucasians for sale this season.

E. M. GRAVES, Iloamosa, San Bernardino Co., Cal.

Golden Italian Queens, 75c

Six for \$4.00.

Mailed promptly. Safe arrival and satisfaction guaranteed.
Circular.

J. B. CASE, Port Orange, Fla.

Westwood Red-clover Queens

Are the bees that got the honey in 1907.

Better try them for 1908. Nuclei and full colonies a specialty. Price list on application.

HENRY SHAFFER, 2860 Harrison Ave., Sta. L, Cincinnati, O.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says, "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

Prices: Untested queens, 75 cts. each; six, \$4.00; doz., \$7.50. Select untested, \$1.00 each; six, \$5.00; doz., \$9.00.

I am filling orders by return mail.

Safe arrival and satisfaction guaranteed. Descriptive circular free. Address

J. P. Moore, queen-breeder, Rt. 1, Morgan, Ky.



Queens

Colden and
three banded.

Wurth's queens take the lead everywhere; have 600 queens; can send by return mail; untested, 60 cts. each. Send for circular.

DANIEL WURTH, Rt 3 Fayetteville Ark.

W. H. Laws

says that, while his trade is very satisfactory, and about as large as he can handle, yet he does not want you who are new to him to forget that the very best of honey gatherers and a square deal is what you will always get when you buy Laws queens.

You should try his strain of Red-clover Long-tongue Italians, one firm alone having bought over 3000 of the Laws queens in the past six years; and more than half the queens sold this season are sent to customers who have bought in former years. A long string of testimonials testify to their merits, and you will make no mistake in buying Laws queens.

Single queens, \$1.00; 6 for \$5.00. Some very fine breeding queens on hand. Safe delivery and satisfaction guaranteed at \$5.00 each. Address

W. H. LAWS, Beeville, Bee Co., Texas.

ITALIAN QUEENS BY RETURN MAIL OR MONEY REFUNDED

Warranted, 75 cents each, six for \$4.00; tested, \$1.50 each. Circular free.

D. J. BLOCHER-PEARL CITY, ILLINOIS

GOLDENS, 10c.

Send 10 cts. (silver) for cage of living bees, **HARDY GOLDENS**, and examine before ordering, if you care to see the most beautiful race on earth. C. Oscar Fluhrly, Sandusky, W. Va.

GOLDEN-ALL-OVER and RED-CLOVER ITALIAN QUEENS

My stock is the result of years of careful selection, and is equal to any in the country. The prices are only such as to insure long-lived, prolific queens, whose workers will be hardy and good honey-gatherers. Write for 1908 circular.

PRICES. 1 6 12
Untested \$1.00 \$5.00 \$9.00
Select untested 1.25 6.50 12.00
Tested, \$1.75 each; select tested, \$2.00 each.

Positively all orders filled in rotation.

Wm A. Shuff, 4426 Osage Ave., Philadelphia Pa

Long-tongued

Red-clover Queens

Bred by their Originator

Do you want to get some specimen queens of the world-famous red-clover stock of Italian bees? Then buy from me, because I am the originator, and surely ought to know how to breed them in their purity. When you get them from me you know you have the real strain. For years I have devoted time and skill to this stock, trying to reach perfection. I can submit many splendid testimonials in favor of this stock to show my work has not been in vain. Try them, and YOU will be pleased also. I endeavor to please the practical man looking for definite results in dollars and cents. Many years' experience as head apiarist of The A. I. Root Co. enables me to fill the most exacting order with complete satisfaction to the purchaser. Let me show you how well I can please you.

Prices

	June	October	\$1 00
Untested queen	"	"	"
Select untested queen	"	"	1 25
Tested queen	"	"	2 00
Select tested queen	"	"	3 00
Breeding queen	"	"	5 00
Select breeding queens	"	"	7 50
Extra select	1 yr. old	"	10 00

F. J. Wardell

Uhrichsville, Ohio, U. S. A

5000 QUEENS

of the famous 3-banded LONG-TONGUE RED-CLOVER STRAIN OF ITALIAN BEES is what I want to sell this season.

My bees GATHER HONEY if there is any to get; ARE LITTLE inclined to swarm and sting; they please such people as The A. I. Root Co. R. F. Holtermann. W. Z. Hutchinson. Morley Pettit, etc., and if they don't please you, send in your kick.

Queens of all grades now ready.

	1	6	12
Untested queens	\$1.00	\$5.00	\$9.00
Select untested queens	1.25	6.00	11.00
Tested queens	1.50	8.00	15.00
Select tested queens	2.00	11.00	20.00
Breeders	\$5.00 to \$7.00.		

W. O. VICTOR (Queen Specialist), Hondo, Tex.

QUEENS

of the Robey strain of three-banded Italians during the season of 1908. Warranted queens, 75 cts. each; \$4.25 per six; \$8.00 per doz. Tested queens, \$1.00 each. Satisfaction or money refunded.

L. H. ROBEY, Worthington, W. Va.

MILLER'S SUPERIOR ITALIAN QUEENS

By RETURN MAIL: bred from best Red-clover working strains in United States. No better hustlers; gentle, and winter excellent. Untested, from my SUPERIOR breeder: one, 75c; six, \$4.00; twelve, \$7.50. Special prices on lots of 50 or more. Satisfaction and safe arrival guaranteed. Circular free.

ISAAC F. MILLER, :: Reynoldsville, Pa

Convention Notices.

The seventh annual report of the Illinois State Bee-keepers' Association has been published. It contains the last report of the National Association, and also the Chicago Northwestern. Members of the Association receive a bound copy free. Bee-keepers can secure paper-bound copies for 25 cents by applying to the secretary, Mr. Jas. A. Stone, rural route 4, Springfield, Ill.

NOT A CANDIDATE.

I note that a call has been made for a postal-card vote nominating candidates for election to office in the National Association, and, in this connection, let me ask my friends not to vote for me for any office—other duties are too numerous to allow me to do justice to an office.

W. Z. HUTCHINSON, Sec. N. B. K. A.

A WORTHY ENTERPRISE.

The Worcester County Bee-keepers' Association, of Massachusetts, intend holding their third annual exhibition in the Horticultural Hall of Worcester, Sept. 14, 15, 16. The exhibition is free to all, and there are no entry fees to be paid by the exhibitors. Prizes in money, bees, queens, and supplies will be given. The competition is open to New England except for numbers 25, 26, 27, 28, 29, which are open to the world. All exhibits must be in the hall by noon, Sept. 14.

There will be a semi-annual session of the Nebraska State Bee-keepers' Association held in Lincoln during the State Fair. The meeting will be held on Wednesday evening, Sept. 2, at 7 o'clock, at the bee and honey house on the State Fairgrounds.

All bee-keepers in attendance at the fair should be present. There will be interesting discussions, exchange of practical experiences, and renewal of acquaintance. Come to the fair and see one of the best honey exhibits displayed in any of the central States, and enjoy a meeting of one of the growing State bee associations.

LILLIAN E. TRESTER, Sec.

Lincoln, Neb.

NOMINATION NOTICE.

Each member of the National Bee-keepers' Association is requested to mail, by postal or letter, to N. E. France, Plattville, Wis., on or before Sept. 30, 1908, his nominations for candidates for the offices named below, to be voted on at the regular December election.

President; Vice-president; Secretary-Treasurer; General Manager; three Directors. Oct. 1 the General Manager and one disinterested member will count the nominations and publish results in all American bee-papers. Each member should send in his nominations early. N. E. FRANCE, General Manager.

A CHANGE DESIRABLE.

The bee-keepers of West Virginia ought to get busy with the officials of the State Fair, which is to be held in Wheeling, Sept. 7 to 11. We have read the premium list, and so far as we can find out not a cent is appropriated for bees, honey, or beeswax. Belgian hares are given a place, but bee-keeping is a far more important industry than rabbit-keeping in the war-born State. It seems to us this oversight ought to be corrected at once. West Virginia is one of the best States in the Union for bees, and this ought to be recognized by the fair officials; besides, a liberal premium list will draw out exhibits which will prove a decided attraction to the visitors.

WHO WILL BE PRESENT AT THE NATIONAL?

Often, after a National convention is over, more than one man has said, "If I only had known that Mr. Brown was going to be there, I would have gone." Now, before the coming of the convention I wish to publish in the bee-journals a list of all those who are going to be present. I presume I shall not be able to learn one-fourth of those who will go, but, so far as I can learn, I'll give the names. Now, will you have the kindness right now to take a postal and tell me if you are going? or, if you should decide later that you are going, let me know, and it may be the means of your being able to meet some friend that you otherwise would not have seen. W. Z. HUTCHINSON, Sec. N. B. K. A.

PREMIUMS WANTED FOR HONEY DISPLAYS AT THE NATIONAL.

In the Sun Palace at Detroit, Michigan, where the National convention is to be held October 13, 14, and 15, is a large room, 40 or 50 feet across, the sides of glass, and I hope to see this room well filled with a display of supplies, bees, honey, wax, etc.

Of course, the advertising that comes from a display of goods will amply repay any dealer for making a display; but in order to bring out any display of bees, honey, and wax, there must be some inducement, some premiums offered, and, of late, it has become the fashion for dealers to offer some of their wares as premi-

ums, in consideration of the advertising that comes to them from the mention of their names, as the announcements appear in the program that is published in all of the journals, sent out in pamphlet form to all of the members, as well as distributed and used at the convention.

I am now making up the program, and take this public method, that none may be overlooked, of asking dealers to write and let me know what they can contribute in the way of premiums. I would suggest that premiums be offered something as follows:

Best and largest display of single-comb nuclei of different varieties of bees, accompanied by queens, condition of bees, purity of race, and beauty of hives to be the competing points.

Best ten sections of comb honey, completeness of filling of section, evenness of surface of comb, completeness of capping, free dom from travel-stain, and general neatness and appearance to be the competing points.

Best ten pounds of liquid extracted honey—quality and manner of putting up for the market to be considered.

Best ten pounds of granulated honey—quality, including fineness and smoothness of grain, and manner of putting up for market, to be considered.

Best ten pounds of beeswax—color, texture, and beauty of the cake or cakes in regard to shape to be considered.

The most important, late apicultural invention that has not before been awarded a premium.

If there is some other object upon which a dealer would rather offer a premium he is at liberty to do so. If you prefer, you can simply say what you can offer, and please make it as liberal as you can, that we may have a big display, and then allow me to place the premiums as seems best.

Flint, Mich.

W. Z. HUTCHINSON, Sec. N. B. K. A.

THE SIXTEENTH NATIONAL IRRIGATION CONGRESS.

This event will take place at Albuquerque, N. M., Sept. 29 to Oct. 10, and promises to be the greatest in the history of irrigation. Vice-president Fairbanks will open the convention, and Secretaries Wilson, Garfield, and Cortelyou have promised to be there. The chief of the Reclamation Service will also be present. Quite a number of distinguished men will attend the sessions, and speak. Several s' de trips will be arranged for visitors—among others, one to the \$8,000,000 dam at Engle, N. M.; another to the Grand Canyon, and still another to the Tonto dam in Arizona. The convention will make history for the Southwest.

W. K. M.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

THE TOEPPERWEIN WORD CONTEST.

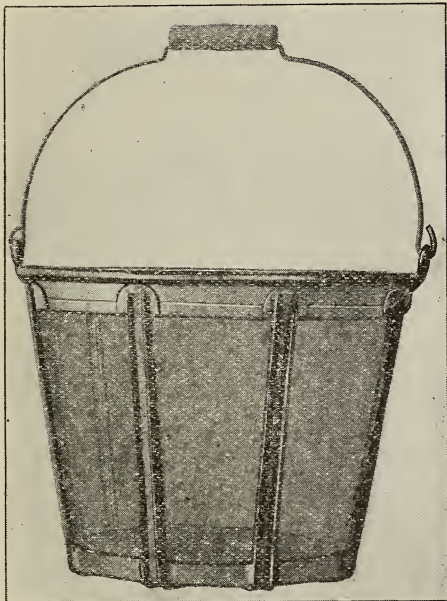
Some of our subscribers have evidently failed to notice the brief announcement made on p. 732 of our June 15th issue as to the result of this contest, in which we gave the names of the twelve highest on the list. We beg to advise further, that, in accordance with their previous announcement, Messrs. Toepperwein submitted to us the list of words from the first prize-winner, with a request that we publish the same; but as it reached us rather too late for the issue intended, as had been announced, we decided to return the list to them, and this was done; but the list was lost in the mails to San Antonio, Texas. Messrs. Toepperwein then took the matter up with the first prize-winner, Edna L. Crocker, requesting her to send a duplicate of the list, to which she replied by telegram that she was unable to furnish such duplicate. It then being out of the question to furnish a copy of this, which disappeared between our office and San Antonio, Messrs. Toepperwein requested us to publish the second list, containing 435 words. It is their impression that this list was sent to us, and they asked us to return it to them. Strange as it may seem, we can not discover that it was sent to us, nor can we recall positively that it was not; but at any rate, this second list, at this writing, is not to be found either. There seems to be no question, however, as to the awards made as published in our issue for June 15, page 732, although it would, perhaps, be a satisfaction to some of the contestants, more than one thousand in number, to have a copy of the list. If it is possible to do so we will obtain a list of the words, 435 in number, and publish it in a later issue. The name of the second winner is now practically certain, and the award will probably go to the party now claiming it. We do not know of anybody claiming 435 words aside from one party who has written us a number of times on the matter. In conclusion we wish to absolve Messrs. Toepperwein from any blame in the matter of not publishing the list, as they left it somewhat with us, and it did not occur to us that there was any necessity for it; and now when we try to discover the list we can not locate the same. While there is very unusual interest taken in this (greater by far than any one anticipated), we do not feel disposed to allow such a competition in our columns again.

WAX CRAFT, BY T. W. COWAN.

We are now in position to take orders for the above book. It is elegantly bound and beautifully printed. See review by W. K. Morrison elsewhere in this issue. Price \$1.00, prepaid anywhere.

THE ALEXANDER STRAINER PAIL.

Since Mr. Chalon Fowls spoke so highly of the Alexander strainer honey-pail that we illustrated in the new A B C and X Y Z of Bee Culture, page 177, we have decided to make them and offer them to the public, believing they will fill a long-felt want. We reproduce the cut here for the convenience of our readers. It is nothing more nor less than a skeleton pail with



sides and bottom filled in with a very fine milk-strainer wire cloth, 60 meshes to the inch. This screen is small enough to catch even the smallest particles of dirt or wax. These pails are well made, and we can furnish them at the introductory price, at least, of \$3.00 per pail. A wire cloth of such mesh is quite expensive and the labor of making considerable; we can scarcely furnish it for less. As soon as we can determine whether there will be sufficient demand to make it pay in sufficient quantities, the price can be reduced.

Special Notices by A. I. Root

In response to the kind invitation of W. Z. H. on page 1024, I would say that, Providence permitting, I expect to be present at the National convention in Detroit, Oct. 13, 14, and 15.

GOD'S MEDICINE—MORE ABOUT IT.

We clip the following from the *Cleveland Plain Dealer*:

A woman of 107 years, who died the other day, says she owed her long life to the ripe fruit she ate.

We should be very glad to get further particulars in regard to the above—especially if this good woman's favorite fruit was ripe apples, and if she ate them every evening a couple of hours before bedtime.

UNCOOKED WHEAT AND OTHER GRAINS FOR CHICKS AND HUMAN BEINGS.

Every one who reads the poultry-journals will notice there has been a great revolution of late in regard to the diet of poultry. The testimony is overwhelming in favor of dry food—no more mixed messes with water or even milk, and no cooked food of any kind, especially for baby chicks. Give them "biby chick food" and nothing else, and water to drink. Milk is all right, but do not stir it up with other food. And now the world is just beginning to discover that what applies so well to chicks applies also to human beings.

THE A B C OF GETTING WELL AND KEEPING WELL.

The matter in this issue, and perhaps some more added to it, is to be printed in pamphlet form to be given away. If you will send a stamp to pay postage we will send you just as many copies as you need to give to ailing friends. If they should be the means of giving health to suffering humanity, the knowledge of it will be better pay for me than any pay that might come in the way of dollars and cents. So do not be backward about asking for as many of them as you can use, where you think they will do good.

LEAN BEEF AS A MEDICINE.

Since the matter on page 1014 "was printed I was greatly pleased to learn that our family physician had recommended to a patient, who could not take milk toast without pain and distress, to eat nothing but scraped beef, nicely broiled, for several meals. He said good lean beef prepared in this way is easier of digestion than any thing else he knew of, and could be taken safely where the patient could not stand milk at all. It has taken a good many doctors a good while to get hold of the idea that lean meat is sometimes, at least, a very valuable medicine.

FLYING-MACHINES UP TO DATE.

I suppose most of you have noticed by the daily papers that my predictions are coming to pass. Farnam has been making a series of successful flights here in America, and Wilbur Wright has also made two or more successful flights in France. We have not heard from De la Grange and the "June Bug," but the thing is now so well started that flying-machines will probably very soon be an every-day occurrence, even if they should not be as plentiful as autos, right away. God grant that they do not duplicate the number of accidents that are being daily recorded with automobiles in the hands of those who can not be satisfied with a moderate and reasonable speed.

SO-CALLED NON-EXPLOSIVE GASOLINE-CANS.

There are certain people who are canvassing the country, offering for sale gasoline-cans for which the claim is made that gasoline or kerosene, after either has been stored in the same for twenty minutes or more is rendered non-explosive. Scientific men assure us there is no known method of making gasoline or kerosene non-explosive; and, furthermore, the so-called electrical arrangement in some of the cans does not produce electricity at all, even if said electricity could exert any influence (which it does not) in rendering the gasoline non-explosive. The fact is, it is very difficult to make gasoline explode in any can. If any one has any doubt of this, let him take a can of any sort, pour in gasoline, shake the can well, and try to explode it. All it will do, probably, will be to show a pale-blue flame at the opening of the can when ignited. No amount of shaking or spilling of the burning fluid will cause an explosion. The vendors of the so-called "chemical" denaturizing cans, knowing this, are able to perform what has seemed like wonderful stunts. If any reader wishes to try these experiments, let him do the igniting at the end of a ten-foot pole, for gasoline will explode when the conditions are just right.

A "CHICKEN BIBLE."

Mr. A. I. Root:—For six years I have been an amateur bee-keeper in a small way, and the A B C book has literally been my "bee bible" every hour of that time. I can't express the enjoyment and profit the reading of it has afforded me. Now, I want to go into the chicken business. Is there a "chick n bible" published anywhere that will do for me what my "bee bible" has done? I am glad to say I am with you on the liquor question, and enjoy the articles in GLEANINGS. I have voted the Prohibition ticket for 16 years. The saloon is the great American monstrosity.

F. A. COGSWELL.

Swaledale, Iowa, Aug. 5.

Friend C., I thank you for the very high compliment you pay the A B C book; and I hope our poultry friends will excuse me when I say that, from my point of view, there is no poultry-book that covers that whole subject as thoroughly and exhaustively as the A B C book does that of bees. There are some very valuable books on poultry that were published several years ago; but to have such a book up to date it would have to be kept standing in type just as our bee-book is, so that a new edition could be issued every two or three years. Some of the best articles and best advice I have found are in the large expensive catalogs sent out every year by the manufacturers of incubators. Among others I will mention the Cyphers catalog. The book entitled "An Egg-farm," that we sold for so many years, started out in its first editions with more energy and enthusiasm than any other poultry-book I ever got hold of; but in the last edition, by the O. Judd Co., the writer has introduced such a multitude of cogwheels, wires, and other machinery, the book is so complicated that any real practical poultryman would say it was entirely out of the question. Now, I shall be very glad indeed to have our readers who are conversant with poultry literature tell us what book or books to recommend to such people as our good friend Cogswell,

CLASSIFIED ADVERTISEMENTS

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say what you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—5000 lbs. of clover and amber honey in 160-lb. kegs.
C. J. BALDRIDGE, Homestead Farm,
Kendaia, N. Y.

FOR SALE.—Fancy well-ripened clover extracted honey, packed two 60-lb. cans to case, 9½ cts. per lb. (New cans.)
GEO. SHIBER, Randolph, N. Y.

FOR SALE.—2000 lbs. white-clover honey, mostly comb, heavy, well ripened. What am I offered?
J. M. MOORE, Holden, Mo.

FOR SALE.—5 tons of fine-quality comb and extracted. State amount you wish, and we will quote you our lowest cash price.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Choice white extracted honey, mostly clover and raspberry mixed, in new 60-lb. cans. Price on application. Sample, 10 cts.
JAMES McNEILL, Hudson, N. Y.

FOR SALE.—Fancy clover extracted honey in new cans, two in a case. Send 10 cts. for sample, which may be deducted from first order.
EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—No. 1 clover comb honey, 4x3 plain sections, in best no-drip cases, 14 cts. f. o. b. cars here. If you want "gilt-edge" Michigan clover honey, write me for price on large quantity.
L. E. EVANS, Onsted, Mich.

FOR SALE.—Write for prices on clover, basswood, and buckwheat honey in 60-lb. cans and kegs; also comb honey and beeswax, all guaranteed to be pure.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Choice extracted honey for table use, gathered from clover and basswood—thick, well ripened, delicious flavor. Price 9 cts. per lb. in 60-lb. cans, two to case. Sample, 10 cts.
J. P. MOORE, Queen-breeder, Morgan Ky.

FOR SALE.—Clover and raspberry honey; also basswood honey; well ripened, rich body and delicious flavor; extracted from capped combs. Two 60-lb. cans (120 lbs. net), \$10.75. Ask for sample if a choice article will please.
F. B. CAVANAGH, Boscobel, Wis.

FOR SALE.—New crop of fancy white-clover extracted honey, thoroughly ripened on the hives before extracting. None of better quality on the market. Put up in barrels, new 60-lb. tin cans, and smaller packages if desired. For prices, etc., address
EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Our own production of comb honey, 4x5 plain sections, No. 1 quality, at 16 cts. per section. Our comb honey won every important premium in the State last year. If you have a place for some "gilt-edge" comb, write.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—3000 lbs. extracted white and Alsike clover honey in 60-lb. cans, two to the case, cured and ripened in the hive for weeks; thick heavy body; just as good as a specialist can produce. Price 9 cts. per lb. on car at Pittstown. Sample 10 cts., which will be deducted from first order.
ALBERT G. HANN, Rt. 1, Pittstown, N. J.

FOR SALE.—150 cases of No. 1 comb honey, 15 sections in 3-inch glass, no-drip cases, 6 cases in a crate, very fine, at \$2.40 per case, f. o. b. cars here. Also 8000 lbs. clover and basswood extracted, in new 60-lb. cans, 2 in case, very heavy body and fine flavor, at 9c, f. o. b. cars here. Sample free.
W. H. TOWNSEND, Hubbardston, Mich.

FOR SALE.—My new crop of white-clover extracted honey. Honey has been left in full charge of the bees for three weeks after harvest, and is rich, waxy, and of fine flavor, and is as good as a specialist can produce. Price is 9½ c. per lb. by the case of 120 lbs. or for the entire crop. Cash to accompany order.
LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

It is just as I expected! The bees are now, this 21st day of July, gathering basswood honey, and piling it on top of the raspberry. It will be raspberry and basswood honey mixed this year. Then about the time this August 1st GLEANINGS reaches you we will be extracting. Rich, ripe, and rosy will be the kind of honey I will have for sale this year. Some of it has been on the hive 60 days. Doesn't it make your mouth water to think of it? It will be put into bright new shiny 60-lb. cans that you can see your face in. I am asking 10 cts. a pound for this delicious honey—just a little more than it takes to buy the ordinary kind. Ask for a sample, and be convinced.
E. D. TOWNSEND, Remus, Mich.

Honey and Wax Wanted

WANTED.—25 tons of fancy comb honey. Write, stating particulars, to C. M. CHURCH, New Kensington, Pa.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 South Water Street, Chicago, Ill.

WANTED.—Comb and extracted honey, any quantity. Alfalfa clover preferred.
THE FRISBEE HONEY CO.,
Box 1014, Denver, Colo.

Mail small sample, giving quantity you have, how put up, and lowest cash price you will take for it.
E. R. PAHL & Co., Milwaukee, Wis.

WANTED.—We are in the market for No. 1 white extracted honey in any quantity. Correspondence solicited. State kind, quantity, and price asked. We also have for sale 60-lb. honey-cans, 2 cans in a case. Both cans and cases in A1 condition, at 30 cts. per case.
MICHIGAN WHITE CLOVER HONEY CO.,
31-33 Griswold St., Detroit, Mich.

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Golden Italian queens by return mail, 50c.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—125 colonies of Italian bees, with honey, cheap.
F. M. JONES, 21 Price Ave., Lockport, N. Y.

FOR SALE.—800 colonies of bees; for particulars, address
DR. GEO. D. MITCHELL & Co., Ogden, Utah.

Golden Italian queens by return mail, untested, 50 cts.; tested, \$1.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—36 strong colonies Italian bees at \$3.00 each the lot for \$100.00. This offer not good after Sept. 1.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Northern-bred red-clover queens. Untested, 75 cts.; tested, \$1.00.
E. S. WATSON,
R. F. D. No. 2, Madison, Maine.

FOR SALE.—A choice lot of Italian queens, very yellow, reared from the Henry Alley Adel stock. Queens, \$1.00 each.
A. D. TUTTLE, 114 Portland St., Haverhill, Mass.

FOR SALE.—Improved Italian and Golden Mortgage-lifer queens. Tested and untested, \$1.00 to \$3.00.
BEST THE BEE-MAN, Slatington, Pa.

FOR SALE.—Italian, Carniolan, and Caucasian queens. Untested, 75 cts.; 12, \$8.50; virgins, 40 cts.; 12, \$4.50. Stamps not accepted.
EDWARD REDDOUT, Baldwinville, N. Y.

FOR SALE.—Italian bees and queens now ready. Untested, \$1.00; tested, \$1.50. Bee-keepers' supplies, Root's goods. Send for prices. Eggs from Silver-laced Wyandotte poultry.
N. V. LONG, Biscoe, N. C.

FOR SALE.—Selected young Italian queens, bred for superiority in honey production. Single queen, 75 cts.; 6 for \$4.00; one dozen, \$7.50. Also golden-all-over, Cyprians, Carniolans, and Caucasians. JULIUS HAPPEL, 414 Fourth St., Evansville, Ind.

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FOR SALE.—Fruit and vegetable farm; poultry and bees; healthy location; price \$3500. R. ADDISON, Loughman, Fla.

FOR SALE.—A good paying bee business in Minnesota; with or without real estate; 400 colonies Italian bees, with all necessary up-to-date appliances.

A B C, care A. I. ROOT CO., Medina, Ohio.

FOR SALE OR RENT.—Bee-hive factory; waterpower, 85-horse capacity; trackage, yardage, 93,000 feet floor-space. Native basswood for sections can be bought for \$3.00 to \$5.00 per cord. Thick soft white pine for hives available at less than Eastern price. If interested, come.

W. H. PUTNAM, River Falls, Wis.

For Sale

FOR SALE.—Tasmanian necklace shells, any quantity. Sample sent. G. H. SMITH, Ramsgate, Tasmania.

FOR SALE.—My apiary, 90 colonies, and all supplies; also my prize-winning strain of Rose Comb White Leghorns.

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FOR SALE.—A fine small apiary at a big bargain. If interested, send stamp for full particulars.

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FOR SALE.—One and two year old goldenseal roots, one-year old ginseng roots; 1907 crop of ginseng seed.

S. PITTS, Stronghurst, Ill.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars.

W. P. SMITH, Penn, Miss.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to

FRANK S. STEPHENS,
Paden City, W. Va.

FOR SALE.—200 cases of 5-gallon cans. All are free from rust inside, and the majority have been used but once. Two cans in a case; 10 cases or more, 25 cts. per case.

J. E. CRANE & SON, Middlebury, Vermont.

FOR SALE.—Best Wisconsin sections, 1000, \$4.00; 2000, \$7.75; 3000, \$11.00; 5000, \$17.50; No. 2, 50 cts. less; plain, 25 cts. less, 24-lb. 2-in. glass shipping-case, 14 cts. Catalog free.

H. S. DUBY, St. Anne, Ill.

FOR SALE.—About 1300 or 1400 cases, two five-gallon cans each, practically free from nail-holes, and were new tins when originally shipped to us. Make us an offer.

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A. I. Root's Bee-goods, Poultry-supplies, Seeds, etc.

STAPLER'S, 412-414 Ferry St., Pittsburgh, Pa

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WANTED.—A good bright young man to sell honey—"a nice winter's job;" would prefer single man, 25 to 30 years, who can tell all about bees and honey.

THE SNYDER BEE & HONEY CO., Kingston, N. Y.

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WANTED.—Refuse from wax-extractors and old comb or cash.

ARCHIE COGGSHALL, Groton, N. Y.

WANTED.—100 to 200 colonies of bees on shares.

GROVER ABBEY, Rt. 63, Troy, Pa.

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OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

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I no longer club a queen with GLEANINGS.

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Bee-keepers' Supply Co., Lincoln, Neb. We buy car lots of Root's goods. Save freight. Write.

ITALIAN QUEENS from imported mothers; red-clover strain, \$1.

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ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, \$3.00.

A. L. AMOS, Comstock, Nebraska.

GOLDEN yellow Italian queens—my specialty. Price list free.

E. E. LAWRENCE, Doniphan, Mo.

Root's BEE SUPPLIES. Send for catalog.

D. COOLY, Kendall, Mich.

Mott's long-tongues by return mail, also goldens—hardy, yet gentle, but little or no smoke.

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Well-bred bees and queens. Hives and supplies.

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T. F. BINGHAM, Farwell, Mich.

Golden Italian queens, 75 cts. each. Satisfaction guaranteed.

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ITALIAN BEES, queens, honey, and Root's bee-keepers' supplies.

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Golden-all-over and red-clover Italian queens; circular ready.

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Order your bee-supplies from Superior Honey Co., Ogden, Utah, at Root's catalog prices. You save time and money. Largest dealers in the West.

Root's bee-supplies at factory prices, *Black Diamond Brand Honey*, and *bee-literature*. Catalog and circulars free.

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Have you seen Hand's queen circular? It's an eye-opener. Your address on a postal card will bring it. It will pay you to send for it.

J. E. HAND,

Birmingham, Erie Co., Ohio.

QUEENS.—Improved red-clover Italians, bred for business, June 1 to Nov. 15, mated queens, 60 cts.; select, 75 cts.; tested, \$1.00 each. Safe arrival and satisfaction guaranteed.

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Improved Italian queens now ready. Nuclei and colonies May 1 to 10. Over twenty years a breeder; 500 colonies to draw on. Free circulars and testimonials. For prices see large advertisement in this issue.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ITALIAN BEES AND QUEENS. I breed three-banded stock only, and use the finest breeding stock to be had. For prices, see display advertising columns in this issue. Send for price list. Twenty-five years' experience.

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TENNESSEE QUEENS.—Best that experience can produce. Untested three-band and goldens, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Canasians, \$1.25 each. Write for circular; order goldens from Ben G. Davis; others from John M. Davis, Spring Hill, Tenn.

Breeding queens of pure Canasian and Carniolan races—price \$3.00. Order from A. E. Titoff, Expert in Apiculture, with Russian Department of Agriculture, Kieff, Russia. Remit with orders. Correspondence in English.

CARTONS for COMB HONEY



We are now prepared to furnish these cartons in several styles and in two grades of stock; also in various styles of printing. We can also execute special designs in quantities on special orders. Let us know your wants.

The Danz, open-end carton will enclose a section and pack in the regular shipping-case. We furnish it for $4\frac{1}{2} \times 5 \times 1\frac{3}{4}$ and $1\frac{1}{2}$, $3\frac{3}{8} \times 5 \times 1\frac{1}{2}$, and the several widths of the $4\frac{1}{4}$ section. To hold the carton in place on the section you need a rubber band around it. These bands are not furnished with the cartons except at an extra price, and only when so ordered.



The folding carton is of a different pattern from those heretofore furnished. They tuck in

at the top and bottom in a neater form, and are without tape handle. Sections packed in these cartons require shipping-cases made a little larger than the regular sizes, but such cases do not require glass. Some of our agencies have on hand some of the old style cartons in some sizes, which may be supplied on orders unless otherwise specified. These cartons are furnished for all regular sizes of sections; namely, $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ and $1\frac{1}{2}$; also $4 \times 5 \times 1\frac{3}{4}$. Other sizes furnished in quantities on special order.

PRICE LIST OF CARTONS.

Danz, carton, regular size, plain or printed name blank, 50 cts. per 100; 500, \$2.25; 1000, \$4.00. Weight, 4 lbs. per 100.

Folding cartons, regular sizes and grade, plain, 60 cts. per 100; 500, \$2.75; 1000, \$5.00.

Folding cartons, regular sizes and extra quality, plain, 75 cts. per 100; 500, \$3.25; 1000, \$6.00.

Extra for printing stock design, name and address blank, 50 cts. per 1000 one side; 75 cts. both sides for each color.

For inserting name and address in design at same printing, add 50 cts. for any quantity. For printing in name and address in a stock design, after that has been printed, add 50 cts. for 100; 75 cts. for 500; \$1.00 for 1000. Such cartons can be supplied only from Medina. Special designs or printing quoted on application.



AIKIN BAGS FOR CANDIED HONEY.

These are of tough paper coated with paraffine. Honey should be poured into them just as it begins to thicken by granulation.

1-pound bags, $3\frac{1}{2} \times 5\frac{1}{2}$, per 100, \$.65; 500, \$3.00; 1000, \$5.50.	Weight per 1000, 10 pounds
2 " " 5 x 7 $\frac{1}{2}$, " " .80; " 3.75; " 7.00.	" " " 18 "
3 $\frac{1}{2}$ " " 6 x 9 $\frac{1}{2}$, " " 1.00; " 4.75; " 8.75.	" " " 28 "
5 " " 7 x 10, " " 1.20; " 5.50; " 10.50.	" " " 35 "
10 " " 10 x 10 $\frac{1}{2}$, " " 1.50; " 7.00; " 13.50.	" " " 45 "
Printing name and address extra, " .30; " .75; " 1.00.	

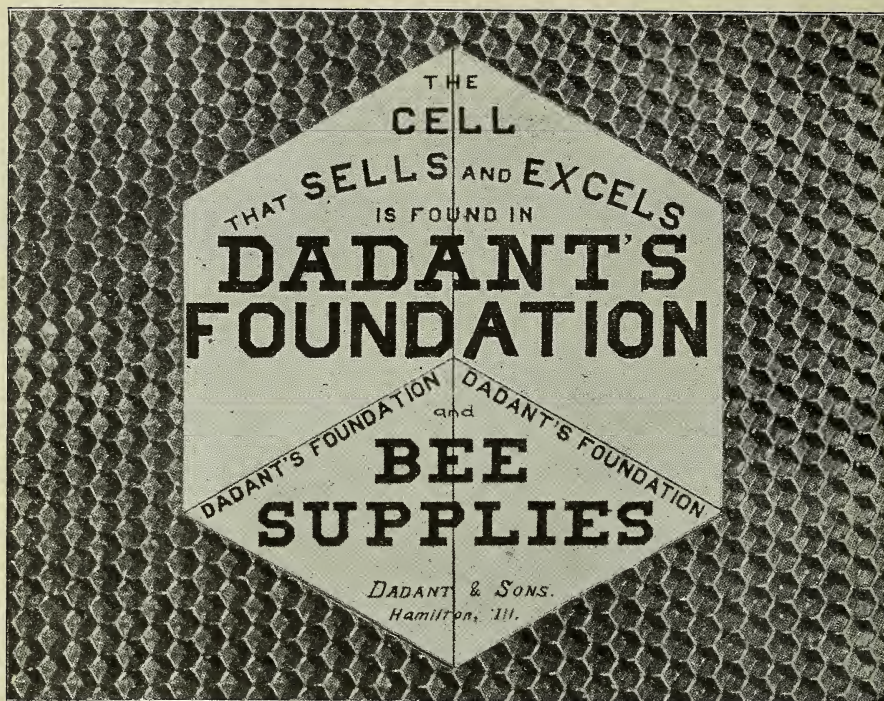
May be sent by mail for 18 cts. per pound for postage and packing.



Candied-brick Honey-wrappers.

We have developed a good trade in choice candied honey cut into $1\frac{1}{4}$ -pound bricks, like a piece of butter. These bricks are wrapped in parchment paper, placed in a folding carton, and a fancy white wrapper printed in gold with end-labels put on the outside. We can supply the parchment wrappers, cartons, and labels complete ready for use at \$7.50 per 1000 sets. With your name and address on the wrapper add \$1.00 per 1000.

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With water
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**PERFECT
BAKER
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All top doors and frames made of
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One burner will give as much light as ten ordinary oil lamps; six 16 candle power electric bulbs—six 16 candle power gas jets or 5 acetylen gas jets. Costs 2 cts. per week. Produces a pure, white, steady, safe light. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog.

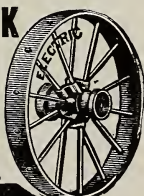
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Book on "WheelSense" free.
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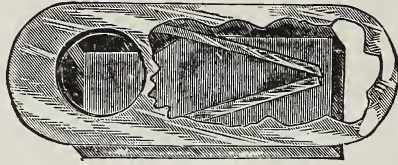
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HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. Just tip the super to the angle of 45 degrees and insert the board. In a few hours it is free of bees; then take off your super. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES

Each, 20 cts.; dozen, \$2.25; postpaid. With board, 35 cts. each; \$3.25 per 10; by express or freight.

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They are perfect in action.—British Bee Journal.

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Worthy of highest commendation.—Eugene Secor, judge on awards, World's Fair, Chicago.

I would not do without them even if they cost five dollars apiece.—W. Muth-Rasmussen, Independence, Cal.

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To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can not afford to be without them longer.

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This number of the Review contains more unqualified praise of the Porter bee-escape than any other issue has ever contained of any other implement; but so long as it is deserved, who cares?—Bee-keepers' Review.

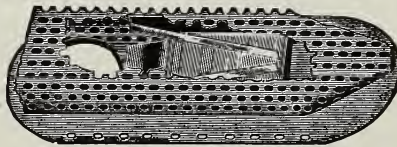
They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

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